The Chemical Age

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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Nitrate Distribution Combine

PRESUMABLY as a result of the recent formation of the Nitrate Sales Corporation in Chile, a company has been formed in this country known as Chilean Nitrate of Soda Distributors, Ltd. This was registered on August 31 as a private company, having a capital of £10,000 in £1 shares. The directors are: Mr. T. T. Aikman, of Aikman (London), Ltd.; Mr. G. E. Korn, of Antony Gibbs and Son; Mr. F. Petrinovic, of the Lautaro Nitrate Co. and Baburizza and Co.; and Mr. W. Weir, of Andrew Weir and Co. The registration states that the objects of the company are "to carry on the business indicated by the title, and that of produce brokers and general commission agents, etc." It is believed that it will sell for the account of Chilean producers who consign to members of the group. The formation of the company has given rise to much discussion, for it seems to mark a further important step in the efforts which are being made to consolidate the nitrate industry.

In addition to the centralisation of nitrate sales, which has now been effected for about 85 per cent. of the total production, it is suggested that the Chilean Government is considering the question of improved methods of production. Many of these methods are old, and it seems possible that a very considerable improvement could be effected in this direction. It is even thought that if this avenue seemed promising the Chilean Government might be inclined to offer assistance of some kind.

The River Pollution Report

THE Joint Advisory Committee on River Pollution has begun its work well in producing its first report so quickly. This report, necessarily, is no more than a survey of the ground, but it indicates that to a considerable extent river pollution is due to the fact that the law designed to prevent avoidable contamination is frequently not put into force. A variety of reasons are given for this: the jurisdiction of an authority may be limited to its own area; many bodies charged with the administration of the law have other duties of a more urgent nature to discharge; while many of these bodies are themselves potential or actual offenders against the law.

It appears from the report that even under present conditions, apart from any alteration of the law, quite a large amount of useful work can be done. For example, under the Local Government Act of 1888, the Ministry of Health has power, by provisional order made on the application of the council of any of the counties concerned, to constitute a joint committee or rivers board representing all the administrative counties through or by which a river passes, and to confer on that body all the powers of a sanitary authority under the Rivers Pollution Prevention Act, 1876. The present report urges that this important fact should be brought to the notice of the various authorities concerned. The point is elsewhere made that for the prevention of pollution a body specially charged with the administration of the appropriate Acts and acting throughout the whole or the greater part of a river basin is far more effective than a body operating in the limited area, and occupied with a large variety of work. The committee clearly recognises that the purification of waters which have been used for domestic or commercial purposes before passing to the rivers is often difficult and expensive. This is notoriously the case, for example, in the beet sugar industry. It has been repeatedly pointed out that in some foreign countries where the production of beet sugar has been carried on for many years the proper treatment and disposal of the effluent still presents acute difficulties. Similar difficulties have

arisen in connection with the manufacture of artificial silk, one case still being under inquiry.

It is unlikely that all the difficulties will be solved easily or quickly. It is, however, a great advantage to have a committee dealing broadly with the whole question of river pollution and its prevention. In addition, it should be borne in mind that the Department of Scientific and Industrial Research is also dealing with the same question from the practical point of view.

Patent Law Weaknesses

THERE is no doubt that the strong dissatisfaction which is felt with regard to the present weak state of British patent law is coming to a head. A short time ago, Dr. E. F. Armstrong, F.R.S., at the annual meeting of the Association of British Chemical Manufacturers, said, in regard to the extraordinary number of foreign patents taken out in this country during the past year, that for the most part they were not genuine patents. They were taken out with the object of preventing British manufacturers from making or using substances often well known. He added that no blame attached to the Patent Office, the officials of which were bound down according to regulations and their legal interpretation. At the same time, he indicated in plain terms that this abuse of patent law would have to be fought. This week the matter has been dealt with by Mr. F. H. Carr, who said, in his presidential address to the Society of Chemical Industry in New York, that at the present time the patent laws of Great Britain were being grossly abused with regard to chemical substances, because few dared face the great expense and uncertainty of patent litigation. He went on to denounce the manner in which chemical patents were often designed largely for the purpose of blocking the field to other workers, pointing out that this was in direct opposition to the fundamental intention of the patent laws, the object of which was to encourage and reward investigation.

Mr. Carr proceeded to make a number of interesting suggestions. If chemists in different countries simultaneously appointed committees to consider the patent question, some of the difficulties might be solved. Moreover, it might also be possible, if agreement among chemists of different nations could be achieved, to reach a better state of international unification of patent law than exists at present.

Safety First

THE chemical industry of this country is, on the whole, remarkably immune from accidents of a serious kind; and, furthermore, it does not tend to carry on its work at the expense of the health of its workers. This is due to a variety of reasons: the modern employer is a humane man; public opinion in this country operates strongly against dangerous trades; and the Home Office organisation for dealing with these matters is remarkably efficient. This very immunity from evils of this kind is the reason why, apart from fire risks, the question of safety is very rarely touched on here except in Government publications.

In the last few years the question of the safety of the chemist and the chemical worker has been much discussed on the Continent and in the United States. At this year's annual congress of the National Safety Council of the United States, which will take place at the beginning of October, the chemical section is to be very active. Mr. H. C. Parmelee, editor of *Chemical and Metallurgical Engineering*, will deal with "Some Recent Observations on Safety in Chemical Engineering." There will be papers dealing with "Treatment of Chemical Burns"; "Toxicity of Solvents and Diluents in the Paint Industry"; and "Safe Handling of Compressed Gases." Probably the most valuable contributions to the proceedings, however, will be a number of general discussions. These will deal, for example, with "Health Hazards in the Chemical Industry" (considered from the standpoint of the Government, the industry, and the insurance underwriter); "The Status of Chemical Industry as Revealed by Accident Experience"; and "Safety in Chemical Equipment" (divided into three sections, "Pressure Release Methods," "Corrosion and Maintenance," and "Gauging and Sampling.")

The above programme is a remarkably interesting one. It might be worth while to arrange a similar series of discussions in this country. Unfortunately, the question of safety does not seem to be the special concern of any one society or institution. If, however, any one of them took the initiative and got together a programme for a discussion it would probably be received very cordially. If a group of chemists and chemical engineers were to come together at intervals, even informally, to discuss current difficulties and dangers, a great deal of useful work could be done.

Books Received

THE CELLULOSE LACQUERS. By Dr. Stanley Smith. London: Sir Isaac Pitman and Sons, Ltd. Pp. 145. 7s. 6d.

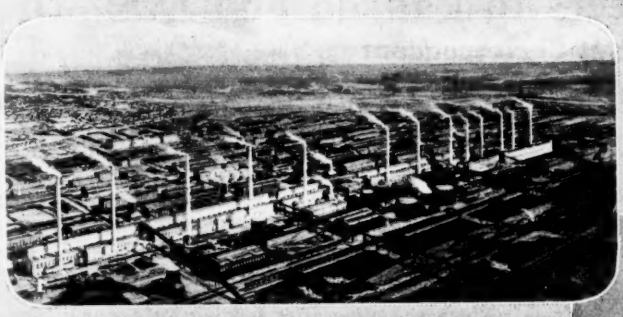
THE RECOVERY AND USE OF INDUSTRIAL WASTES. By John B. C. Kershaw. London: Ernest Benn, Ltd. Pp. 212. 25s.

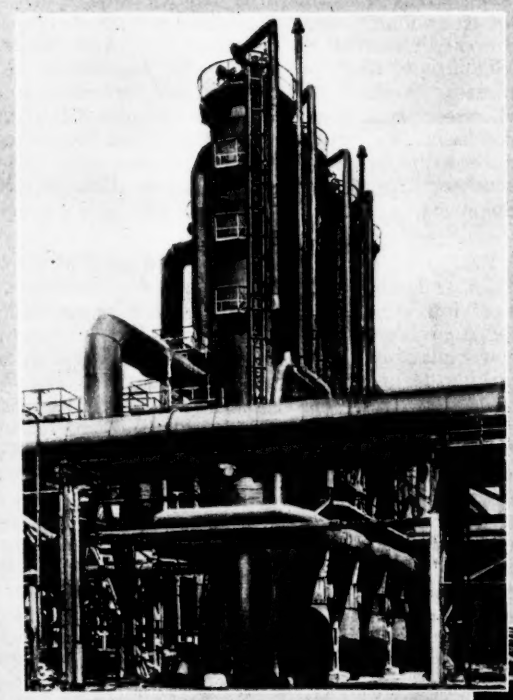
PATENT LAW AND PRACTICE. By A. W. Griffiths. London: Stevens and Sons, Ltd. Pp. 174. 7s. 6d.

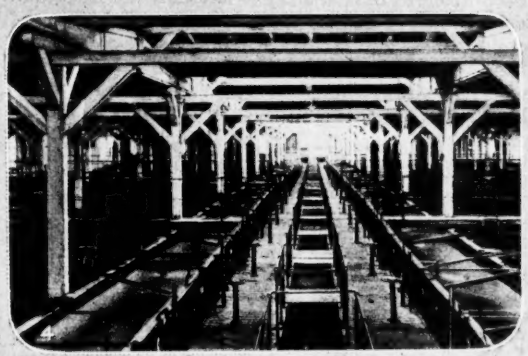
The Calendar

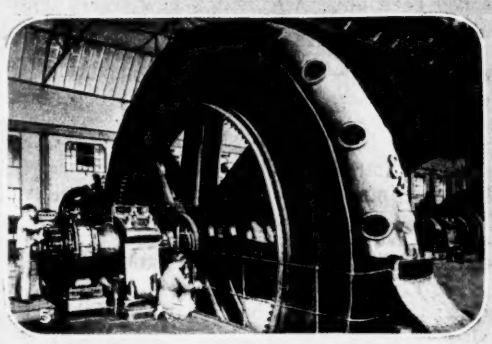
Sep. 5–12	British Association Meeting.	Glasgow.
5–22	Machine Tool and Engineering Exhibition. Daily, 11 a.m. to 9 p.m. Saturdays, 10 a.m. to 10 p.m.	Olympia, London.
10–14	American Chemical Society: 76th meeting.	Swampscott, Massachusetts.
14–17	Association of Special Libraries and Information Bureaux: Fifth Annual Conference.	New College, Oxford.
20–22	Mining Institute of Scotland: Excursion to Lochaber Hydro-Electric Works, Fort William.	
24–Oct. 6	World Power Conference. Fuel Conference.	Imperial Institute London.
Oct. 1–13	Daily Dispatch Second Artificial Silk Exhibition.	City Hall, Deansgate, Manchester.
10 & 11	Ceramic Society: Building Materials Section. "Modern Facing Bricks," A. B. Searle. "Thermal Insulation," Colin Presswood. "Modern Brick Machinery and Works Layout." The Pragos Engineering Co.	Stoke-on-Trent.
13 & 14	Ceramic Society: Refractory Materials Section Meeting.	Glasgow.
19–22	First Convention of the British Glass Industry.	Bournemouth.
21	Society of Glass Technology.	Bournemouth.

Views of I.G. Plant and Buildings









(1) The Leuna Synthetic Ammonia Works of the I.G. Farbenindustrie A.-G.

(2) The Hospital at the Leuna Works.

(3) A Tower for Gas-Purification.

(4) A Filtration Plant at the Oppau Works of the I.G.

(5) A Dynamo at the Oppau Works.

(6) A Colony at Neurösson, for the Leuna Works.

With the Chemical Engineers to Canada and U.S.—(III)

By Our Special Correspondent

Below is given the third message received from our special correspondent travelling with the party of members of the Institution of Chemical Engineers and of the Society of Chemical Industry to Canada and the United States. Visits to the carbide works at Shawinigan Falls, the works of the International Nickel Co., and other places of interest are described. Previous articles appeared on August 18 and September 1.

Niagara Falls, August 24.

NOTHING could have been more propitious than our entry into Canada just a week ago, and at every step the first favourable impressions have been more than confirmed. For this happy result we are indebted mainly to the energy and businesslike qualities of those responsible for the arrangements. At each stopping place a local committee has made the most generous arrangements for our comfort and entertainment, and these have been admirably incorporated into the programme by the central organisation represented by Dr. Weidlein and Mr. H. C. Parmelee, the president and secretary respectively of the American Chemical Engineers, who are travelling with us.

This is the first real rest the party has had since it left Quebec last Sunday evening, yet so well have the arrangements been fitted in that nobody is seriously fatigued, and if the second week of the tour turns out as well as the first it will prove almost a miracle of good organisation inspired by real enthusiasm. I have seen and known something of American hospitality before, but the exertions our hosts are making promise to touch a record.

The visit has excited great public interest, and at each stopping place the party has obtained a very good press. This morning I have been giving a fellow journalist some impressions of the tour, and have been introducing the manager of the Royal Bank of Canada to many members of the party. The figure-heads, it is true, are few. We possess no orator. No one has yet attempted a statement of the precise objects and meaning of the tour, but what has been said in public has had a good social effect and tends to produce good feeling on both sides. Singularly enough, the best speeches of the tour have come from people rather outside the industry. At Shawinigan Falls we had an admirable summary of the relation of chemical science to industry from the local senator and the mayor, the latter first speaking in English and then reverting to his native French, which predominates heavily in the Province of Quebec. At the dinner given at Montreal, Dr. Martin, the vice-principal of the university, gave us an excellent summary of the Canadian situation from the chemical point of view. On the whole, however, the public speaking has not been too impressive, and occasionally one has felt the need of some one like Sir William Pope to supply a sample of typical English after-dinner speaking and to say something really worthy of a rather remarkable occasion.

We arrived here last night after a busy but delightful train tour. To-day, the main body of the party were off at a fairly early hour on a series of visits to local works, while the remainder are either strolling about in this wonderful spot or clearing up arrears of correspondence before returning to our train quarters on Sunday evening. The most that one can do now is to sketch very briefly the tour so far as it has gone.

Canada, as I have said, has impressed everybody, equally in the spaciousness and beauty of its scenery, the vigour of its industrial life in centres like Montreal and Toronto, and the immense possibilities of its less developed areas, in several of which we have witnessed the wonderful effects of the right application of its water power and the exploitation of its timber and mineral resources.

The sail up the St. Lawrence to Quebec was a constant delight, and the city, when we at last caught sight of it, even exceeded our expectations in beauty and picturesqueness. There was time after landing for a quick tour of the city and inspection of the Fort and some of the famous churches, and then to assemble for our first dinner at the magnificent Chateau Frontenac. Dr. Bates, research engineer to Price Brothers and Co., presided, and short addresses were given by Sir Alexander Gibb and Dr. Weidlein. An interesting ceremony was the presentation to the latter of a leather-bound diploma admitting him to honorary membership of the Institution of Chemical Engineers.

Early on Monday morning we had reached Shawinigan Falls, and after breakfast were taken to see three of the most important industrial works—the paper mill of the Belgo Division of the St. Maurice Valley Corporation, the power plant of the Shawinigan Falls Power Co., and the carbide plant of Shawinigan Chemicals, Ltd. Nothing could have more impressively illustrated the power of chemistry and chemical engineering to transform a remote district of great natural beauty into a world-famous centre of industry. Shawinigan is still a small place in numbers, but the possibilities of expansion are without limit. Going first through the paper mill, one saw the whole process on an immense scale carried through from beginning to end. Starting with a mountain of logs, we watched them being converted into pulp, and finally reappear ready for export as immense reels of newsprint. Under one roof, as it were, the entire process is carried through at great speed. The Shawinigan plant includes the original power house, but the main purpose of this is to show how far the original scheme has been outgrown, and a new power house of immense dimensions is now in process of completion. It was a very valuable act of foresight that secured these immense water rights, and one gathered that the company has no intention of surrendering to tempting American offers.

The carbide plant, again, illustrated the complete process from the furnace stage—a rather terrifying spectacle, which, as someone said, knocked spots off Dante—to the packing of the product in attractive steel drums for export purposes. One noticed with satisfaction the pleasant effect of lawns and flower beds in the midst of these great industrial operations; they seemed everywhere to soften the influence of the thundering machinery and to remind one of the human factor involved in the organisation of even the greatest works.

The luncheon that followed at the Cascade Inn was one of the prettiest functions of the tour. Sitting out under the trees on the summit of a mound, with the flags of four nations fluttering about us, and the wonderful great waterways of nature on every hand, we enjoyed some of the best speaking of the tour, and left in abundant good humour with everything.

Monday evening found us assembled in the magnificent hall of the Windsor Hotel at Montreal for dinner. Here

Mr. Carr, for the first time, joined in the speaking. A very lively programme of music and dancing had been organised, and the members returned to their train with only one regret—that no time was available for inspecting this important transport and financial centre.

At an early hour on Tuesday morning we had crossed the Quebec boundary and arrived at Cornwall, Ontario, a small industrial town, which has its paper mills, and in which Courtaulds have recently erected a very fine new factory for the manufacture of artificial silk. This factory, in which we saw the entire process from the treatment of the pulp sheets to the final skeins of rayon yarn ready for dispatch, is intended solely to supply the needs of Canada. It represented the very latest type of layout and machinery.

Mid-day found us at Ottawa, the beautiful capital city of Canada. We had time to inspect the Parliament House and to start on a motor tour before a storm descended on us. This was particularly unfortunate because it spoiled what would have been an interesting party in the grounds of the Government Central Experimental Farm. The Lieutenant-Governor was present, but instead of hearing him speak, we merely watched him strolling about under an umbrella, while we rescued what remained of tea under a rain-drenched marquee.

The night journey from Ottawa to Kirkland Lake, Ontario—a run of some 14 hours—was rather dreaded by most members of the party, but it proved in fact to be a most interesting experience. The journey takes one well beyond the boundaries of ordinary civilisation, and for hours we passed through wild natural Canada, just as many a prospector has seen it for the first time. Kirkland Lake, although now organised into a community, is still spoken of as a mining camp. The fatigue of the long journey was forgotten within a few minutes in the delightful air, and the party spent an energetic day in inspecting the gold mines and the cyanide mills of the local companies. The president of the local committee is Mr. Harry Oakes, a well-known figure in the gold mining industry, who is giving us a garden party to-morrow. It was disappointing to miss him, but we had a number of speeches at luncheon from the local directors of the mines. They were all very striking types of mining leaders, and left an impression of the hard job that the prospector still takes on. We left the place with very kindly feelings and appreciation of our neighbourly reception.

That same evening the train arrangements allowed of a short break at Cobalt, named after the mineral deposits found in the neighbourhood. Immediately on our arrival at about 7 p.m., representatives of the local mining companies drove us up to their country golf club. It was a delightfully picturesque spot, and the moon came out to give just the right touch of romance to the occasion. The evening was such a successful affair that it was difficult to drag the guests away, and one or two only caught the train by a very narrow margin. Thursday mid-day, after a long run through the night, found us at Port Colborne. The trains took us alongside the great works of the International Nickel Co. of Canada, and nearly two hours was spent in an inspection of the various stages of treatment. A few hours later the whole party were fixed up in the Hotel Clifton.

Here we come to the end of the Canadian tour. The hotel faces the great falls, and on the other side of the bridge is the United States. The passport authorities have been most obliging in allowing us to pass to and fro. The tour has been a tremendous success, and after a couple of days rest we shall enter on the second stage with revived interest. Up to Ottawa the party had kept intact. There, however, several members made diversions of their own. They are now, however, returning here, and on Sunday night the party will be completely reunited.

In conversation with numbers of American members of the party one found many inquiries about Dr. Longstaff, the general secretary of the Society of Chemical Industry. Dr. Longstaff's absence has been noted generally, and I fancy it was learned with surprise that his long connection with the Society will shortly cease. What is likely to happen is not yet known, but it is improbable that any lengthy discussion will take place on the subject in New York. The original intention to appoint another gentleman as secretary at the New York meeting will probably not be persisted in, for the reason that the gentleman in question — generally regarded as well qualified — has declined the appointment in view of the controversial atmosphere that surrounds it. The most likely course is that the Council will be authorised to make the appointment it considers best. One learned over here—a rather interesting fact—that the advertisement of the post appeared on the very day the party sailed.

The conference here was not taken too seriously, but there was a good attendance, and a discussion which thoroughly justified the meeting. The only weakness—if it could be called such—was the number of papers presented, which allowed only a short period for the consideration of points raised by the authors. F. E. H.

Canadian Asbestos Production, 1927

Asbestos production in Canada during 1927 was slightly less than in 1926, but higher prices raised the total value to 5·1 per cent. over the preceding year, according to statistics issued by the Dominion Bureau of Statistics at Ottawa. Shipments in 1927 amounted to 274,778 tons valued at $10,621,013, as against 279,403 tons valued at $10,099,423 in 1926. The average value received by the operators in 1927 was $38.65 per ton as compared with $36.15 per ton in the previous year. Exports of asbestos (including sand and waste) in 1927 amounted to 263,290 tons, consisting of 14,496 tons to Great Britain; 196,308 tons to the United States; 19,829 tons to Germany; and smaller tonnages to Australia, Belgium, France, Italy, Japan and the Netherlands. Production of asbestos in South Africa and Cyprus continued to increase last year, but the Rhodesian output remained approximately the same as in 1926. The output from the Union of South Africa deposits totalled 22,133 tons; from Rhodesia, 33,176 tons; from Cyprus, 12,544 tons; and from the United States, 2,986 tons. Capital employed in the asbestos mining industry in Canada by the seven firms operating was reported at $35,316,821. Employees engaged in this industry numbered 2,976; their total earnings amounted to $3,761,192. Fuel and electricity costs reached the sum of $1,046,541. Ten plants in Canada manufactured asbestos products, including the following commodities: asbestos paper and mill board; asbestos roofing of all kinds; asbestos rigid shingles; asbestos building materials; asbestos cellular and sponge-felted pipe insulation; insulating sheets and blocks; asbestos brake linings and clutch facings (woven on special looms); and asbestos packings for steam, oil and hydraulic operations.

Formation of Oliver United Filters, Inc.

It is announced that Oliver United Filters, Inc., has been formed by the amalgamation of the Oliver Continuous Filter Co. and the United Filter Corporation. The offices of the company are at 150, Southampton Row, London, W.C.1, and the works at Bradford, Yorks. Among the products of the company will be Oliver vacuum filters and auxiliaries, Oliver-Borden thickeners, and "Olivite" acid pumps, hitherto produced by the Oliver Continuous Filter Co.; and American vacuum filters and auxiliaries, Sweetland thickeners, Sweetland pressure filters, Kelly pressure filters, United plate and frame presses, and Sweetland cantilever filters, hitherto produced by the United Filters Corporation.

Chemical Engineering Conference at Niagara

Meeting of British and American Institutions During British Tour

A joint meeting of the American Institute of Chemical Engineers and the Institution of Chemical Engineers was held at the Clifton Hotel, Niagara Falls, on August 25. Several important papers were read. The following précis of papers read was made by one of the British Chemical Engineers taking part in the tour.

Niagara Falls, August 25.

MR. H. E. FRITZ read a paper on "The Industrial Uses of Rubber." Little attention, he said, has been paid to the needs of the chemical and allied industries until comparatively recently. Rubber has admirable properties, but its corrosion and abrasion resisting properties possess the greatest interest to chemical engineers. The utilisation of these properties has always presented a difficult problem owing to other limiting factors, such as lack of rigidity, lack of tensile strength, etc.

The Vulcalock process provides for the bonding of rubber to metal. It has overcome some limiting factors and has placed a new construction material, having a combination of properties useful in meeting certain corrosive and abrasive requirements, on the market. Tank wagons having a capacity of six to twelve thousand gallons have been successfully made for the conveyance of hydrochloric acid, and from evidence already available it would appear that these will have a life of about 16 years.

Vessels for use in connection with hydrofluoric acid are also being satisfactorily built. Compounded rubber can be prepared which is without discoloration when phosphoric acid is conveyed. C.I. pipes can be lined with rubber and serve admirably. In this case the rubber is drawn through the pipes in the raw state and vulcanised subsequently. A gasket is usually employed on the outside of the flange.

It has been found that rubber will successfully resist the corrosion of 50 per cent. sulphuric acid and 75 per cent. phosphoric acid.

Abrasion

Just as rubber has proved effective in the solution of corrosive problems, so it has been successfully applied to resist abrasion, and special study has been given to the compounding of rubber of various kinds for this purpose. For the pumping of grit and gravel, and for the conveyance of this material, it has proved reasonably effective. Rubber-lined centrifugal pumps can be obtained, no less than filter press frames 24 ins. by 24 ins., which can be used at a pressure of 85 lbs. per square inch.

Further than this, rubber is being successfully used for the lining of ball mills up to certain diameters. At first, the wear and tear was excessive, but by increasing the peripheral speed, local movement of the balls has been prevented and the original trouble has been overcome. It has, however, been established that rubber lining is unsuitable for ball mills of over 5 feet diameter. The drop of the balls is sufficiently heavy to cause puncturing of the rubber, the structure is broken, and the material "goes to pieces."

Much of the development referred to has been the result of outside influence. Nevertheless, the industry is responsive to any improvement, or to any suggestions likely to extend the usefulness of rubber for chemical purposes.

Chemical Engineering in Modern Industry

A paper having the above title was read by Charles M. A. Stine, chemical director, E. I. du Pont de Nemours and Co. Modern civilisation, said Mr. Stine, has been profoundly influenced by the rapid development of the sciences of chemistry and physics. The developments of the research laboratory impinge upon our daily lives from many angles. The term "chemical engineer" has been often discussed. Whatever modification of the various definitions personal preferences may dictate, it is now understood that by the term "chemical engineer" is meant a man possessed of a knowledge of chemistry, physics, thermodynamics and mechanical engineering. Chemistry views the chemical reaction; chemical engineering views the pocket-book reaction, *i.e.*, efficient and economical production and concomitant profits.

It is possible to classify industries on the basis of the penetration of chemical engineering: Group 1, where penetration is almost complete, consists of heavy chemicals, fine chemicals, electrochemicals, coal tar products, commercial high explosives and propellant powders, artificial fibre and synthetic resins. In group 2, where penetration is roughly 60 to 75 per cent., one would include: The processing of coal and crude oil, wood distillation, sugar refining, preservation of perishable foodstuffs, manufacture of paper ard related pulps, manufacture of cement, lime and special plasters, and of fertilisers. In group 3 are to be found such industries as: Manufacture of vegetable oils, ceramics and glass, paints and varnishes and soap, leather, textiles and rubber. Here chemical engineering may be 50 per cent. or less.

Chemical Engineering in the Various Groups

The first class is essentially chemical in process and product. The scientific basis is recognised and the direction and control of operations are largely in the hands of technically-trained men. Because of its close connection with pure chemistry, in which the scene is ever kaleidoscopic, the chemical industry has experienced many important changes. The industries of the second class include some of the largest in which the chemical engineer is active. The petroleum industry may be cited. The industry is moving with a constantly increasing acceleration towards a scientific basis, as is evidenced by the organisation of the American Petroleum Institute. Not every plant in the second group is on a scientific basis, but the outstanding ones are. Indeed, technology has penetrated to such a degree that it is the exceptional plant which is run on rule-of-thumb lines. In the second and third groups one can look for the increased penetration of the chemical engineer. In the gas industry the chemical engineer is fast coming into his own. Only by the application of scientific and engineering principles can the gas industry hope to succeed in the face of the intense competition of the electrical industry.

The petroleum technologist is of necessity a chemical engineer. Chemical engineering begins in the field and does not end at the refinery. Large oil companies are recruiting their sales force from the ranks of the chemical engineer—a logical development. The chemical engineer has rapidly assumed a commanding position in the wood distillation industry. The production of methanol by high pressure synthesis has struck a heavy blow. By the utilisation of the recent processes of Suida and Brewster, the industry is making a fight to regain the ground lost in the acetic acid field. The fertiliser industry is closely concerned with the heavy chemical industry. New methods for the production of sulphuric and nitric acids, synthetic ammonia, and concentrated fertilisers, and the recent processes for producing phosphoric acid by volatilisation from low grade phosphates, are all recent chemical engineering achievements which have had profound effects.

A Case In Point

In the third group of industries a high degree of development has been attained through generations. These industries have developed as arts, however, and not as technical processes. At this juncture a brief citation of the history of the development of one of the new processes of the company with which Mr. Stine is associated was given. The lesson it unfolds is that a process such as the manufacture of nitric acid from ammonia can be developed by the physical chemist and the chemical engineer. It can be transferred from the research laboratory to semi-technical scale operation and finally to the large scale in practically complete detail, and made to function efficiently and economically, reproducing the product in the volume and at the price which original estimates and calculations led one to expect.

Finally, it may be said that the degree of penetration of chemical engineering into industrial development is not only an accurate index of the efficiency of that development, but is a reliable guide to the probable acceleration in the development of the entire chemical manufacturing industry.

Other papers were read. An epitome of these will be given next week. Of the English contingent taking part in the discussion, the following names will be familiar: Dr. Cullen, Professor Hodsman, Messrs. Potter, Parrish and Twiss.

Research and the Chemical Industry

Mr. F. H. Carr's Presidential Address in New York

On Tuesday of this week Mr. F. H. Carr, the retiring president of the Society of Chemical Industry, delivered his presidential address, entitled "Research and Chemical Industry," at the meeting of the Society held in New York.

SIXTEEN eventful years, said Mr. Carr, had passed since the Society last met in New York, years marked by great advances in applied chemistry, and in which the foundations had been laid for even greater developments in the future. As it was appropriate to the occasion to speak on a subject which would enable him to touch broadly on national activities, he proposed to consider briefly the position of industrial research and its bearing on the future of applied chamistry.

The D.S.I.R. and the Research Associations

Mr. Carr then dealt with the formation of the Department of Scientific and Industrial Research, and with the nature of its activities. He sketched the manner in which the Department encouraged the formation of research associations in each industry. As a method of enabling a group of small manufacturing units directly to solve problems which were common to all of them, the research associations had speedily proved their value, and, as a corollary, the scientific direction and teaching necessitated by the method had greatly benefited the industries concerned. Without these, many firms, hitherto lacking in scientific personnel, would have been unable to take advantage of the results obtained by research.

Thus the effect of the British Government's research organisation was to benefit industry by solving current difficulties and introducing scientific method. This was quite aside from the real object of contributing new knowledge.

Secrecy

The work of the research associations also tended to diminish trade secrecy by forming centres for the exchange of experience and the discussion of technical problems. There were many results of research, such as the elimination of waste and improvement in efficiency, in which questions of secrecy did not present great difficulties. Success in these directions quickly led to closer co-operation, and thus to a greater desire to undertake such fundamental researches as lay outside the range of the firm's or corporation's own research department. Private enterprise in research thus became complementary to the association, rather than being in competition with it.

The difficulty of secrecy, however, could not be lightly dismissed. The great value of competitive industry was that it induced emulation in two chief respects—efficiency and novelty. Expenditure on research was incurred by private enterprise for the sake of the power which resulted from early and rapid use of knowledge. Clearly, either effective patent protection or secrecy was needed by those wishing to exercise that power. In Great Britain the ineffectiveness of their patent law greatly contributed to that need for secrecy.

Weaknesses of British Patent Laws

At the present time the patent laws of Great Britain failed to inspire confidence, and they were being grossly abused in regard to chemical substances, because few dared to face the great expense and uncertainty of patent litigation. One of the effects of the research associations and other trade associations was a higher standard of ethics resulting in mutual respect for each other's patents, and a greater readiness to grant licences.

In chemical discovery, and especially in organic synthesis, it was possible for one invention to be the key to many subsequent discoveries, and yet to be of little practical value unless those later discoveries were made; and these might entail much more vision, work and ability than the original invention. For avenues of systematic research thus to be monopolised was in direct opposition to the fundamental intention of patent laws, their object being to encourage and reward investigation. To-day many, one might say most, chemical patents were designed to anticipate discovery in this way, so as to block the field to other workers.

Chemical invention differed in many respects from mechanical invention, and there was a strong need that chemists in different countries should simultaneously appoint committees to act in some concerted manner with a view to solving the many difficulties which beset chemical patents in their respective countries. Such committees would have as common objects: (1) the encouragement of research, (2) maintaining a truly international spirit in science, (3) securing a just reward to the inventor for the improvement in industry resulting from his invention. A just reward ought to include remuneration to those who had contributed to the invention by researches freely published in scientific journals.

Fuel Research

Mr. Carr then proceeded to deal with a few recent examples of successful applied research. With regard to fuel research, the Fuel Research Station constituted one of the biggest industrial research undertakings of the British Government. A new experimental retort for the low-temperature carbonisation of coal had been developed by the Station to such an extent that the Gas Light and Coke Co. of London were erecting a bank of these retorts capable of producing 100 tons of smokeless fuel per day.

The by-products from the tar obtained by the low-temperature process, being entirely different from those ordinarily obtained in producing gas, would not find their best market until their chemical nature had been investigated. This was being undertaken in the Government Chemical Research Laboratory, under the direction of Professor G. T. Morgan. He recently described many interesting constituents of this tar, and there was already a promise of useful new basic material for the makers of dyestuffs, paints and resins.

Other subjects to which reference was made were nitrogen fixation; the remarkable work carried out in America for the production of alcohols for use in the lacquer industry; and the development in the use of catalysts.

Chemotherapy and Allied Matters

Biochemical and chemotherapeutical matters naturally also figured in Mr. Carr's address. He gave a short account of recent work on vitamin D, indicating the importance of the work which had been done on the production of this substance from ergosterol. The work of Dr. C. R. Harington, of University College, London, on thyroxin had culminated in the synthesis of this substance, which had remarkable influence on metabolism. The synthesis was now being carried out on the manufacturing scale, and it required (commencing from quinol and *p*-nitroaniline) fifteen separate steps. This, said Mr. Carr, was perhaps one of the most complex syntheses ever applied commercially.

Reference was made to the fact that a commencement had been made in Great Britain in organising chemotherapeutic research, through a permanent committee of chemists and bio-chemists, to develop and co-ordinate chemical and biochemical research and to co-operate with industry, while a separate clinical committee was organising and directing the necessary clinical trials of substances which had been shown to be of possible importance in medicine.

Amalgamations

Finally, Mr. Carr pointed out that in order to make the most of scientific discoveries, it was necessary that industrial leadership should be entrusted to those who understood science. It was of the greatest importance that amalgamation, whether of firms or of their research departments, should be accompanied by the provision of effective scientific leadership. In large concerns such leadership could not be secured unless individuals concerned were invested with a full measure of power and importance in relation to the commercial and financial direction. There was grave danger of this not being recognised when control passed into the hands of large financial interests.

Those applying science needed an outlook upon life and work which went beyond that of piling up wealth. They could take delight in producing riches, but they needed to know that the results of their labours would count in the scheme of the universe. Industry was a unified organisation to satisfy the material wants of men, and not merely a means of accumulating personal wealth.

Phosphorescence. Fluorescence, and Chemical Reaction

The Presidential Address to Section B of the British Association

On Thursday, the activities of Section B (Chemistry) of the British Association meeting at Glasgow were inaugurated by Professor E. C. C. Baly, who delivered an address under the above title. Extracts from the address are given below.

THE phenomena associated with chemical reaction, said Professor Baly, and in particular the mechanism of chemical change, formed a subject of peculiar interest. The story of the development of ideas from the birth of modern chemistry to the present day was one which to his mind formed the most attractive chapter in the history of the science. It might be that to some of those who earned undying fame by the determination of the constitution of most wondrously complex molecules, to some of those who went down to posterity as masters of synthesis and wizards of organic method, it might be that to these this chapter presented an interest that is languid. On the other hand, there were many to whom it made a great appeal because the subject matter was the fundamental basis of chemical knowledge.

It was in a very humble spirit that he ventured to speak upon this subject. He did so not with any confident assurance of being able to put forward a theory of chemical reaction which would embrace all the known facts and embody all the views that had from time to time been enunciated, but rather in the hopes of collecting together a number of observations which had been made in fields allied to chemistry, and appeared to be worthy of consideration by those who sought to find an explanation of the mechanism of chemical reaction.

Important Observations

The allied fields to which he referred were those of phosphorescence, fluorescence, and absorption spectra, fields which had been enriched by observations of high accuracy. Those observations were of special significance in that they were concerned with the physical properties of molecules in contradistinction to those of atoms. The phenomena of chemical reaction were essentially associated with the absorption and radiation of energy, and it thus seemed somewhat strange that little attempt had hitherto been made in considering the mechanism of reaction to invoke aid from the many investigations in those allied fields which obviously dealt with the energy changes undergone by molecules. It would be his endeavour to show that the evidence that had been obtained from the study of luminescence and absorption spectra had a very direct bearing on the phenomena of chemical reaction, and that the hypothesis of activated molecules which formed the basis of the modern theories of the latter could be rigidly tested and examined by the former.

One of the most important theories brought forward during recent years was that known as the radiation hypothesis, which was developed independently by Perrin and by W. C. McC. Lewis. Briefly stated in an elementary way, this theory postulated that molecules in general had no chemical reactivity, and that they became reactive after they had absorbed energy. In order that a specific reactivity be induced, a definite quantity of energy must be supplied to bring each molecule from its initial stage to its reactive state, that quantity being called the critical increment of energy characteristic of the specific reaction.

The Two Parts of the Radiation Hypothesis

Professor Baly then went on to indicate how the radiation hypotheis had been formulated mathematically. The hypothesis had been attacked, and consequently abandoned by many. He pointed out that it could be divided into two parts: the first part was concerned with the exact quantity of energy (the critical increment) which was required to bring a molecule from its initial state to a reactive state, and unless the whole conception of different molecular states were dropped, this conception stood on a sure and firm basis; the second part of the hypothesis, namely, that the critical increment could be absorbed as a single quantum of energy by a reactant molecule, was a pure assumption.

The address then proceeded to an examination of phosphorescence, fluorescence, and absorption spectra, and of their inter-relation, from which it was concluded by Professor Baly that evidence gained from the experimental investigation of photoluminescence gave strong support to the reality of the critical quantum of activation, but entirely disposed of the possibility of a molecule gaining this quantum by a single process.

Some work had recently been carried out by Hood at Liverpool, said Professor Baly, on the photosynthesis of carbohydrates from carbonic acid in the presence of pure nickel carbonate. From the observations made, it followed that complete activation of the carbonic acid took place in two stages, namely, partial activation by adsorption with the formation of a molecular state capable of absorbing rays within the visible spectrum, whereby the activation was completed by photochemical means. Stress was laid on the existence of an adsorption complex of carbonic acid and nickel carbonate. There was a possibility that in the formation of such a complex, one of the components might yield a definite amount of energy to the other.

Complex Formation

If it were accepted that such complex formation were possible, then it might be concluded that, even though the second molecule had become activated, the reaction characteristic of the activated state would not take place until the energy defect of the first molecule had been restored. In other words, the activated state of the second molecule had become stabilised. In the second place the resolution of the complex into a normal molecule of the first and an activated molecule of the second would be secured by making good the defect in the rotational energy of the first molecule. The formation of a free molecule of the second in the activated state was no longer a process of direct activation by radiant energy, which had proved to be impossible, but an increase in the rotational energy which, as was known, could be effected by means of infra-red radiation.

The method of activation suggested, therefore, was the formation of a complex between a molecule of the reactant and a molecule of a catalyst, in which the former gained its critical quantum of activation at the expense of the rotational energy of the latter. Such a complex would be stable and would only be resolved into its components when the defect in rotational energy of the catalyst molecule had been restored, that being possible by the absorption of infra-red radiation. The result of that resolution would be the setting free of the reactant molecule in the activated state.

It follows that the complex would only be stable below a certain definite temperature. As the temperature was progressively raised the stability would be progressively decreased, until a second temperature limit was reached, at which the complex had no stability. At this upper temperature the reaction velocity would be a maximum. The observations of absorption spectra afforded strong support to the hypothesis of complex formation.

In applying the hypothesis to all thermal reactions it was necessary to assume first that no reaction occurred in the absence of a catalyst. That assumption seemed to be justified by the known effect of the removal of all impurities on the reaction velocity. In the second place it was necessary that the catalyst should activate the reactant molecule to the energy level required and no other.

Russian Sulphur Supplies

IN 1917 the Russian Government sunk a shaft and built a small plant for the investigation of sulphur deposits at Chokur-Koyash in the Kerch Peninsula of the Crimea. In 1925-1927 a survey by the Russian Geological Committee revealed the presence of enough sulphur ore to supply the plant for several years. The production of a semi-finished concentrate is now going on. The Shor-Shu sulphur deposit in Uzbekistan in Russian Central Asia, which was mined prior to the war, has never been surveyed and its importance is unknown. There are rich deposits of sulphur in the Kara-Kum desert, but their extent is unknown, and this area is distant from any existing railroad lines. A large potential source of sulphur is from the gases incidental to the smelting of copper pyrites in the Urals.

River Pollution

First Report of Joint Advisory Committee

THE first report of the Joint Advisory Committee on River Pollution has just been published (H.M. Stationery Office, pp. 7, 2d.). The committee consists of Sir Horace C. Monro (chairman) and fifteen other members, with Rear-Admiral C. E. Monro appointed by the Board of Trade as assessor. The committee has begun its task by addressing itself to the question of the machinery best suited to administer the law with regard to the pollution of rivers and streams.

The report commences with a review of the present laws regarding the prevention of river pollution. It is concluded that there is no lack of administrative authority for enforcing the law. Nevertheless it is admitted on all hands that many of our rivers are seriously polluted and that the law designed to prevent avoidable contamination is to a large extent not put into operation. This state of things may be due in part to jurisdiction of each authority being mainly limited to its own area; in part to the fact that many of the bodies charged with the administration of the law have a number of other more pressing duties to discharge. Partly also because many of them are potential or it may be, even actual offenders.

Suggested Action

The evidence received by the committee certainly goes to show that for the prevention of pollution a body specially charged with the administration of the Acts and acting throughout the whole or the greater part of a river basin is far more effective than a body operating in a limited area and occupied with a large variety of other work. This is amply shown by the operations of the West Riding of Yorkshire Rivers Board and the Joint Committees of the Mersey and Irwell and of the Ribble. These bodies, by continual supervision of the rivers under their control, have succeeded not only in checking the growth of pollution in those rivers, but in improving their purity.

Most of the witnesses were agreed that in order to secure the proper administration of the Rivers Pollution Prevention Acts there should be an authority exercising jurisdiction over the river as a whole, including its tributaries at least so far as non-tidal waters are concerned, and the committee are strongly of that opinion. They therefore recommend that steps should at once be taken in that direction.

Present Powers

Under Section 14 of the Local Government Act, 1888, the Ministry of Health may by Provisional Order, made on the application of the Council of any of the counties concerned, constitute a joint committee or rivers board representing all the administrative counties through or by which a river, or any specified portion of a river or any tributary thereof, passes, and may confer on that body all the powers of a sanitary authority under the Rivers Pollution Prevention Act, 1876.

It is therefore possible under the law as it stands at present for the Minister, on the application of any one of the County Councils or County Borough Councils through whose jurisdiction a river passes, to set up a Rivers Board to control the whole length of the river, including its tributaries, so far as it is subject to Rivers Pollution Prevention Acts.

The committee recommend that the provisions of this section should be specially brought to the notice of these councils by the departments concerned. If this were done, applications would in a number of instances be forthcoming; and the establishment of Rivers Boards would be a first step towards the improvement of the condition of many of the rivers.

The area under the jurisdiction of any Rivers Board should be of sufficient size to permit of the employment of skilled officers, and not so large as to make it impossible for the chief officers to keep themselves thoroughly informed as to the existence of any pollution and the most suitable means for its prevention.

In a later report the committee may suggest certain amendments of the law, but they are satisfied that no amendments would be of much value unless the administration of the law were placed in the hands of bodies representing one or more rivers, and keeping a continual supervision over them, and this can be done under the existing law.

The experience of the West Riding of Yorkshire Rivers Board and of the two committees in Lancashire shows that the expenses of such bodies need not be large. The expenses of the first named are equivalent to a rate of 1/7th of a penny in the pound, and of the other two bodies to a rate of from 1/10th to 1/5th of a penny in the pound, on the rateable value of the whole area.

Various Interests to be Considered

The committee recognises that the rivers are the natural channels through which the water that falls on the land or is otherwise brought to its surface has to be conveyed to the sea, and that in populated and industrial areas large quantities of the water have to serve domestic or commercial purposes before passing finally into the rivers. The purification of the water thus utilised is often a difficult and expensive matter. Cases have been quoted in which the cost of a scheme for efficiently treating the sewage of a district has been found to be altogether prohibitive. The rival claims of the river from the point of view of amenity, water supplies and fishing on the one hand, and of ratepayers and traders on the other have to be viewed with a proper sense of proportion, and the committee do not for a moment suggest that it is possible to expect that all our rivers can at once be converted into pellucid streams.

But there is no reason (it is added) why steps should not be taken to prevent needless, wilful and remediable pollutions. That much can be done in this direction is shown by the experience of the existing Rivers Boards. The relations between the Rivers Board and the manufacturers and local authorities are generally cordial, the knowledge and experience of the officials having been found helpful by the traders and the sanitary authorities.

If the recommendations made by various commissions and committees in the past are to be followed, it would seem natural (in the opinion of the present Joint Committee) that river pollution, land drainage, and certain other functions should eventually be vested in one authority. This, however, is a matter for future consideration.

Standard Aluminium Alloy

Latest Production of British Chemical Standards

IT is announced by the organising headquarters of British Chemical Standards that a standard aluminium alloy is now ready for issue. The alloy is the second of a projected series of non-ferrous standard analysed samples. The analysis is as follows:—

ALUMINIUM ALLOY "A."

	Per cent.
Copper	4·68
Zinc	2·37
Nickel	1·85
Lead	1·51
Magnesium	1·34
Iron	0·51
Silicon	0·39
Manganese	trace
Tin	0·05
Aluminium	87·30
	100·00

This standard has been prepared in response to an appeal made at the last triennial meeting of those co-operating in the movement, which arose out of the growing use of aluminium alloys in the aero, motor, and other industries. It will enable chemists to check their methods of analysis and individual working, and thus to settle disputes between buyers and sellers.

The composition does not correspond to any one recognised specification, but is a compromise to enable it to be anlaysed concurrently with most of the B.E.S.A. alloys such as L11, L8, L5, L24, also other alloys containing copper, zinc, nickel, magnesium, etc.

As usual, the analyses have been undertaken by a number of chemists having special experience in this class of alloy—*e.g.*, referee analysts, manufacturers, users, and Government departments. The standard is available to anyone at a price based on covering the cost of preparing and issuing it. The three usual sizes of 50g., 100g., and 500g. are provided, and a certificate (first edition), giving the names of the analysts collaborating and their analyses, is furnished with each sample. In a later edition an outline of the methods employed will be included and sent on request in exchange for the first edition. For further particulars application should be made to British Chemical Standards Headquarters, 3, Wilson Street, Middlesbrough.

Conveyance of Carbon Bisulphide

New Regulations for Road Traffic

UNDER date July 27, the Home Secretary has issued new regulations for the conveyance of carbon bisulphide by road (*Statutory Rules and Orders*, 1928, No. 597. H.M. Stationery Office, pp. 6, 2d.). These regulations may be referred to as the Bisulphide of Carbon (Conveyance) Regulations, 1928. The regulations made on February 28, 1927, and on September 9, 1927, are revoked.

1. Bisulphide of carbon shall not be conveyed except (*a*) In steel or iron containers each of a capacity not exceeding 50 gallons, constructed in accordance with the specification contained in the First Schedule, maintained in good condition and securely closed so as to prevent leakage; or (*b*) In luted and tied-over stoppered bottles, each containing not more than 7 lb., securely packed in strong wooden cases in sawdust, kieselguhr, or other suitable material. Each bottle shall be separated from other bottles by wooden partitions and the total weight of bisulphide of carbon in any one case shall not exceed 30 lb.; or (*c*) In tank wagons, subject to the provisions of these regulations.

Carriage otherwise than in Tank Wagons

2. Containers and cases containing bottles shall be packed so as not to project beyond the sides and ends of the vehicle.

3. Containers shall be loaded and carried bung uppermost. Where the position of the bung renders it necessary for containers such as barrels or drums to be carried on their sides in order that the bung may be uppermost, each container shall, unless packed in a strong wooden perforated case or crate, be carried on a cradle or on runners fixed to the floor of the vehicle. The load shall be secured to the vehicle by ropes or otherwise, unless sides and back of adequate height are provided.

4. Containers, bottles, and cases containing bottles shall be legibly marked or labelled with the words "Bisulphide of Carbon, Highly Inflammable," together with the name and address of the sender.

5. When containers are filled, allowance shall be made for an air space of at least 7½ per cent.

Carriage in Tank Wagons

6. A tank wagon used for the conveyance of bisulphide of carbon shall be constructed in accordance with the provisions contained in the Second Schedule to these regulations, and together with its connections and fittings shall be maintained in good condition.

7. The capacity of a tank wagon shall not exceed 1,000 gallons. The foregoing limitation on the capacity of a tank wagon shall be construed so as to permit of the tank containing the amount specified under varying conditions of temperature. Trailers shall not be employed with tank wagons.

8. During the filling or emptying of a tank wagon the following precautions shall be observed:—(I) If the wagon is mechanically driven the engine shall be stopped the whole time the filling or emptying is proceeding and shall not be run until all tanks have been securely closed; (II) If the wagon is horse drawn, the horses shall be removed and the wheels securely scotched before the filling or emptying is begun; (III) Adequate provision shall be made to prevent the accumulation of a dangerous static charge of electricity.

9. Bisulphide of carbon in cans or other packages shall not be conveyed on any tank wagon used for the conveyance of bisulphide of carbon.

10. If electric lighting is employed on any tank wagon conveying bisulphide of carbon, the following conditions shall be complied with:—(I) The pressure shall not exceed fourteen volts; (II) The circuit shall be heavily insulated from the chassis and the wiring shall be so fixed and protected as to reduce as far as possible risk of damage; (III) The generator, battery, switches and fuses shall be carried in front of the fire-resisting screen when fitted and the battery shall be in an easily accessible position; (IV) Means of cutting off the current close to the battery by a double pole switch or other suitable method shall be provided.

11. The tank of any tank wagon conveying bisulphide of carbon shall be legibly marked with the words "Bisulphide of Carbon, Highly Inflammable."

General Provisions

12. No fire or artificial light capable of igniting inflammable vapour shall be allowed on any vehicle conveying bisulphide of carbon, nor shall any explosive substance or substance or article capable of causing fire or explosion be carried on such vehicle. This regulation shall not apply to petroleum spirit carried for use in the propulsion of a mechanically-driven vehicle.

13. A supply of sand or other efficient means of extinguishing an outbreak of fire shall be carried in an easily accessible position on every vehicle conveying bisulphide of carbon.

14. A person while on or attending to any vehicle conveying bisulphide of carbon shall not smoke.

15. Bisulphide of carbon shall not be conveyed on any public vehicle whilst carrying passengers.

16. All persons engaged in the loading, unloading, or conveyance of bisulphide of carbon shall observe all precautions necessary for preventing fire or explosion.

17.—(*a*) The owner of a vehicle used for the conveyance of bisulphide of carbon, who employs any person in connection with such conveyance, shall furnish a copy of these regulations to, or affix a copy thereof in some place where it can be conveniently read by, any such person and shall take all other measures necessary to ensure that any such person is acquainted with and carries out the provisions of these regulations.

(*b*) No person shall deliver or cause to be delivered any bisulphide of carbon to any carrier for the purpose of conveyance by road:—(I) Unless he shall, with a view to ensure that these Regulations are brought to the notice of the carrier, have delivered to such carrier a copy thereof; (II) Unless such carrier is in possession of, or has available for use, such vehicles and equipment as are or may be adequate and necessary for the purpose of fulfilling the requirements of Regulations 2 and 3, or of complying with the provisions relating to the conveyance of bisulphide of carbon in tank wagons; (III) Unless where a tank wagon is not employed he delivers the bisulphide of carbon or causes it to be delivered, as the case may be, to the carrier in such a state as to comply with the requirements of Regulations 1 (*a*) or 1 (*b*), and Regulations 4 and 5.

18. These regulations shall not apply to the conveyance of bisulphide of carbon on a vehicle (not being a tank wagon) when the weight does not exceed 14 lb. Provided that the weight of bisulphide of carbon in any one container other than a metal container shall not exceed 7 lb.

Penalties of £10 for a first offence, and of £20 plus £10 for each day of continuance for further offences, are enacted in the event of breach of the regulations, and the carbon bisulphide involved may be forfeited.

Specifications of Containers and Wagons

In two schedules accompanying the regulations are given specifications for containers for the carbon bisulphide and for mechanically-driven tank wagons conveying it. The containers must be made of iron or mild steel, and detailed specifications are given of their construction.

International Bitumen Emulsions Statutory Meeting

THE statutory meeting of International Bitumen Emulsions, Ltd., was held on Friday, August 31, in London, Mr. G. S. Hay presiding. The chairman said the company had been formed to take over two businesses, G. S. Hay and Co., Ltd., and Bitumen Emulsions, Ltd., both of which had been operating, with great success, a process for converting solid bitumen into a thin liquid form, in which it could be used with great economy for the construction of roads. The company's policy was to grant licences to companies abroad to manufacture under the process. The British company's sales for the six months of this year were in excess of the sales during the whole of last year. A licence had been granted to operate the process in India; a factory would soon be in operation in New Zealand, and an option for the erection of a factory in Australia had also been granted. Swedish, Japanese and Canadian companies were also in being. Latterly they had amalgamated with one of their biggest competitors, International Colfix, Ltd. The report was adopted.

Definition of Fine Chemicals

To the Editor of THE CHEMICAL AGE.

SIR,—I regret that owing to absence abroad, etc., I have but recently seen the June numbers of your journal. In a report of your issue of June 30, Mr. Blagden is credited with having said that during the hearing of applications before Mr. Atkinson a definition of the term " fine chemical " had met with general acceptance. I had previously studied very carefully the reports of these cases and the shorthand notes of some of them. My strong impression is that even Mr. Atkinson stated, and later proved, that he would not be bound by his own temporary guides, and that nothing approaching agreement was ever reached.

If Mr. Blagden will be so good as to give the terms of this agreed definition of a fine chemical he would place me and many other hopeful chemists under an obligation.—Yours, etc.,

E. I. LEWIS.

113, Gough Road,
Edgbaston, Birmingham.
August 30.

[NOTE.—The above letter presumably refers to the following passage, which occurred in Mr. Victor Blagden's speech at the annual meeting of the British Chemical and Dyestuff Traders' Association, and which refers to the Safeguarding of Industries Act and to the recent decision of the tribunal with regard to calcium biphosphate : " During the first five years of the Act a fair definition of what was a fine chemical was reached. A number of cases were heard by the Referee, and his rulings were accepted by all concerned. They never complained, although his views sometimes did not coincide with theirs. They accepted his reasoned decisions as honest, impartial, and careful efforts to define the term ' fine chemicals.' Now, after some years of freedom from these expensive contests, they were faced with this very serious and determined effort to overthrow what was the generally accepted and proper definition of a fine chemical, and to widen it sufficiently to cover almost any industrial chemical. This was the back door method by which it seemed the manufacturers of industrial chemicals were endeavouring to obtain protection on everything."—EDITOR, *C.A.*]

The World Power Conference on Fuel

To the Editor of THE CHEMICAL AGE.

SIR,—No subject touches more deeply the future of our national prosperity than the economic utilisation of our fuel resources. The World Power Conference on Fuel, which is to be held in London from September 24 to October 6, 1928, promises to be of outstanding importance. Conferences and meetings organised by the various vigorous technical societies interested in fuel give us the opportunity of keeping in touch with developments in this country. But the particular value of this World Power Conference is to enable us to learn of the progress in other countries. The papers which are to be presented come from all parts of the world, and are put forward with the authority of some technical body in that particular country from which the paper originates.

We have had the opportunity of studying many of the 150 contributions—some from America, some from Germany, some from Russia, some from Great Britain—and have no hesitation in stating that much of the information contained therein is of unique value and has never before been made available. We therefore avail ourselves of your valued columns to emphasise to our colleagues in the fuel world that to miss this World Power Conference is to lose a golden opportunity of acquiring, within the space of a few days, a fuller realisation of world knowledge on fuel matters. Full information can be obtained from the secretary.

Yours, etc.,
C. H. LANDER.
EDGAR C. EVANS.
A. E. DUNSTAN.
E. W. SMITH.

36, Kingsway,
London, W.C.2.

Brotherton's Jubilee Celebrations

Gifts to Employees of the Firm

THIS week Brotherton and Co., Ltd. celebrated its jubilee, and Sir E. A. Brotherton, the founder of the firm, is marking the occasion by visiting the various works. On Monday he paid a visit to the Calder Vale Road works at Wakefield, where the business was founded. The works had been closed down for the day in connection with the jubilee celebrations, but the employees gathered in the yard to welcome Sir Edward, who was accompanied by the managing director of the firm, Mr. C. F. Ratcliffe, and Mr. G. J. Denbigh, manager of the establishment. Sir Edward made interesting comparisons between the industrial conditions of to-day and the latter part of last century. In the old days, he said, of course, the the workmen put in much longer hours for much less pay, but he was convinced, he said, that the eight-hour day was better for both employer and employed. As regards the wage question, the idea was long prevalent that one must have low wages to produce cheaply and meet competition, but he was satisfied that the great thing was efficiency, given which, even with higher wages and shorter hours, they could make any business in this country prosper.

To mark the occasion in the history of the firm, Sir Edward announced that he intended giving each employee at the works one pound for every year of service. The total amount disbursed in this way was £976 10s. Mr. J. W. Saville, an ex-Mayor of Wakefield, and the firm's outside representative, had the longest record of service, being just two months short of 39 years, whilst there were eight others with over thirty years' service, and eighteen with over twenty years.

On Tuesday afternoon Sir Edward addressed the employees at the Stourton Chemical Works. After a brief history of the works, an explanation was given of the recent amalgamation into the Yorkshire Tar Distillers, which removed Sir Edward from his position of management. Nevertheless, to show that he had not lost interest in his former employees, and to celebrate the jubilee, he was giving everyone a sovereign apiece for each year of service, as at the other works. Thirty-eight sovereigns were presented to Mr. F. H. Dixon, the oldest member of the staff.

The T.U.C. and the Artificial Silk Industry

THE problem of illnesses arising from the manufacture of artificial silk was discussed at the Trades Union Congress meeting on Wednesday, when Mr. H. A. Hind (Derby), on behalf of the Workers' Union, moved a resolution noting with alarm the ill-effects on the health of workers consequent upon the manufacture of artificial silk, and asking the General Council to press for a Home Office committee to investigate the causes of disabilities to the workers in such factories, with a view to their prevention, or failing such prevention, to ensure that the workers concerned should be covered by the Workmen's Compensation Act. The difficulty at present, Mr. Hind added, was to get definite medical evidence to prove that those diseases arose from employment. He quoted a case where certain residents had secured an injunction to prevent the building of an artificial silk factory on the ground that it was dangerous to health. If it were dangerous to residents outside the industry what was the position of the men who were working in that industry ? The resolution was carried.

Appointments Vacant

GENERAL SECRETARY for the Society of Chemical Industry, to have also position of General Manager of the Society's affairs. For further details see our advertisement columns, p. xxviii.

CHEMIST to supervise oil mill and soap factory in India. For further details see our advertisement columns, p. xxviii.

ASSISTANT DEPARTMENT MANAGER, for large Midland works. For further details see our advertisement columns, p. xxviii.

ASSISTANT to works chemist in London engineering firm. For further details see our advertisement columns, p. xxviii.

From Week to Week

THE METALLBANK UND METALLURGISCHE GESELLSCHAFT will be known in future as the Metallgesellschaft Aktiengesellschaft.

THE MANUFACTURE OF LITHOPONE in Germany is not a very prosperous industry, and latterly a number of manufacturers have ceased to produce it.

DR. E. W. SMITH has been elected chairman of the Fuel Section of the Society of Chemical Industry, in succession to Professor Arthur Smithells, F.R.S.

THE SODA-VERTRIEB G.M.B.H., of Germany, has absorbed Chemische Werke Tempelhof G.m.b.H. The works of the latter, at which soda crystals have hitherto been produced, will cease production.

A COURSE OF LECTURES on "The Chemistry and Technology of Essential Oils" will be given by Mr. C. T. Bennett at the Borough Polytechnic, London, S.E.1, on Friday evenings, commencing on September 28.

DR. H. AINSWORTH HARRISON, A.I.C., has resigned his appointment at the Chemical Research Laboratory, Teddington, on taking up duties as works chemist to Cooke and Nuttall, Ltd., Vale Paper Mills, Horwich, Lancs.

EIGHT PERSONS were killed and more than twenty badly injured by an explosion on Thursday, August 30, at a dynamite factory near Honfleur. Several buildings forming the factory were demolished and many cellars were caved in.

LONG SERVICE AWARDS of medals and watches were made to employees of Synthetic Ammonia and Nitrates, Ltd., and Casebourne and Co., Ltd. recently. The presentations were made by Dr. R. E. Slade and Mr. A. C. Kimpton to fifteen members of the staff.

A NEW COMPANY styled Solidol Chemical (France), Ltd., is to be formed to acquire from Solidol Chemical, Ltd., the manufacturers of lysol and other chemicals in tablet form, the manufacturing and selling rights for France, Belgium, and the French and Belgian Colonies.

IT IS STATED THAT Dr. C. H. Lander, director of fuel research, has made a preliminary test of the Peco Drier, and states that he is satisfied that peat can be dried while using hot water as a heating medium, and that the mechanical arrangements of the drier worked satisfactorily.

IMPORTS OF ARTIFICIAL FERTILISERS into Japan in April amounted to 274,574 tons, including 28,381 tons of ammonia sulphate (as compared with 19,145 tons in March). British ammonium sulphate imported totalled 7,020 tons in April, as compared with 7,177 tons in March.

SIR ROBERT HADFIELD has offered to present a bronze statuary group representing "The Origin of Metallurgy" to the French Academy of Science, of which he is corresponding member. The offer has been accepted, and the gift will replace the clock of the Academy which was stolen some time ago.

RECENT WILLS INCLUDE: Mr. Thomas Robinson, Glasgow, chemical manufacturer, £31,458.—Mr. Edmund Wright Brooks, of Grays, Essex, one of the founders of the cement industry in Essex, whose interests are now merged in the Associated Portland Cement Manufacturers, £106,499 (net personalty £101,922).

ONE MAN WAS SEVERELY BURNED and a number of others less seriously injured in a fire which broke out at the works of the Bankhall Chemical Co., Sandhills, Liverpool, on Thursday, August 30. The fire broke out in a shed in the varnish department. Drums of naphtha, tar and varnish exploded before the outbreak was quelled.

A VERDICT that death was due to heart failure, from cardiac degeneration following fibrosis of the lung, the fibrosis being due to the inhaling of asbestos dust, was returned at an adjourned inquest at Leeds on Tuesday on Margaret Marsden, aged 34, who died on August 25, her death being alleged to result from asbestos poisoning contracted while at work at Roberts Asbestos Works, Armley, Leeds.

MR. W. C. TEAGLE, president of the Standard Oil Co., has visited the plants of the I.G. Farbenindustrie at Oppau and Merseburg, devoting special attention to the process of extracting motor fuel from coal. No immediate developments are expected, but it is believed that Mr. Teagle's discussions with the I.G. leaders will pave the way to an extension of the agreements between the German concern and the Standard Oil Co.

MR. S. H. KATZ, chemist in charge of the gas-mask and respirators laboratory of the U.S. Bureau of Mines, has begun a study of gas-masks, mine-rescue breathing apparatus, and carbon monoxide estimation, at the Safety in Mines Board Research Laboratories at Sheffield. The work is being carried on under co-operative agreement between the U.S. Bureau of Mines and the Safety in Mines Research Board of Great Britain.

THE SOCIÉTÉ L'AIR LIQUIDE, of Paris, and the British Oxygen Co. (states a German message) took an option on the method developed by Dr. Heylandt, of Berlin, for the conveyance of liquid oxygen. Dr. Heylandt asserted that it would revolutionise the oxygen industry. As a result, however, of reports from experts sent to examine the process and patents in Berlin, the two concerns above-mentioned have decided not to take up the options.

PROFESSOR WILHELM OSTWALD, the eminent physical chemist, celebrated his seventy-fifth birthday on Sunday, September 2.

PROFESSOR O. STERN, of the Institute of Physical Chemistry in Hamburg, and Professor H. J. Backer, of Holland, are among the foreign visitors to the British Association meeting in Glasgow.

MR. GEORGE BONHAM, who has been in the employ of the Swansea works of the Imperial Chemical Industries, Ltd., for 64 years, was last week presented with a gold watch on behalf of the company.

REPORTS FROM SOUTH AFRICA state that chemists of the Central Mining Corporation have solved the problem of the reduction of platinum concentrates, thus opening a vista of prosperity for many platinum properties.

A NEW PLANT is being built at Chorzow, Poland, to amplify the output of the plant already operating there for the production of synthetic nitrogen compounds. It will be known as Novo-Chorzow, and will be completed at the end of 1930.

AN EMPLOYEE of Allen and Hanbury, manufacturing chemists, was attacked at the Elephant and Castle Tube Station, London, on Monday evening, and robbed of a bag containing £150. A number of people gave chase, but the thieves escaped.

UNDER AN ORDER IN COUNCIL, the Home Secretary has made regulations bringing the manufacture, sale, possession, and distribution of benzoyl-morphine, dihydro-oxycodeinone, and dihydrocodeinone within the provision of the Dangerous Drugs Act.

THE DISTILLERS CO. has, according to a Frankfurt message, concluded an agreement with the Holzverkohlungs-Industrie Co. of Constance, Baden, for the co-operative establishment of a factory in England for the manufacture of acetone, vinegar, and other products.

THE CALENDAR for 1928-29 of the Royal Technical College, Glasgow, has been received. This contains full details of the courses of study in Chemistry, Engineering and the Arts, both as regards general courses and special courses for degree and recognised examinations.

THE PRODUCTION of calcined soda is to be commenced by the South Manchurian Railway Co., at Darien. The Japanese Ministry of Commerce and Industry has decided, in view of the national importance of the industry, to furnish a subsidy of 2½ million yen, payable over a period of five years.

THE GERMAN DYNAMIT-NOBEL CONCERN is to erect an artificial silk factory in Pressburg, Czechoslovakia. It is presumed that first viscose and later acetate silk will be produced.—The Belgian Sofilaine Co., originally a selling organisation, is to erect an artificial silk factory. The company has an understanding with the Soieries de Strassburg, the Bonnert group.

MR. W. WASHBURN, assistant manager of the St. Louis plant of the Titanium Pigment Co., has sailed for Germany to act as adviser to the I.G. Farbenindustrie in the installation of its new factory for titanium salt production. Under an agreement with the I.G. and the National Lead Co., concerning titanium processes, Mr. Washburn was loaned for this service which he will carry on at the Litangesellschaft, Leverkusen.

THE MAKERS of the Wild-Barfield furnaces, Automatic and Electric Furnaces, Ltd., of Elecfurn Works, North Road, Holloway, London, announce that the name of the company has been changed to Wild-Barfield Electric Furnaces, Ltd. The board of directors and the management of the company remain unchanged. The company states that its new works are the largest in Europe devoted solely to the manufacture of electric furnaces.

THE HOME SECRETARY proposes to bring workers exposed to the danger of silica dust under the benefits of the Workmen's Compensation Act. The draft scheme provides only for the payment of compensation in cases of death and total disablement. Further inquiry will be necessary before cases of partial disablement can be included. The industries affected by the new scheme are the mining of siliceous stones or the crushing, grinding, mixing, or packing of siliceous materials for various purposes.

THE STANDING COMMITTEE under the Merchandise Marks Act has reported to the President of the Board of Trade on the application for the compulsory marking of imported typewriters and other carbon papers, and recommends that an Order in Council should be made requiring the goods to bear an indication of origin at the time of sale, but it does not consider the applicants have established a case for an Importation Order. The method of marking recommended by the Standing Committee is as follows:—Carbon papers sold or exposed for sale in boxes, folders, or other containers to be printed or stamped on the box or container, and also on the inside folder (if any); carbon papers sold or exposed for sale in rolls to be printed or stamped on the outside wrapper, or on an adhesive label securely affixed to the outside wrapper, or (if there is no outside wrapper) to the roll itself.

Obituary

MR. S. M. GLUCKSTEIN, a director of J. Lyons and Co., on Wednesday, August 29, aged 43. Among the work which he directed was the extensive chemical department of the firm.

MR. WALTER STROUGLER GRAY, A.I.C., Director of the Chemical Section, Ministry of Agriculture, Cairo, on August 31, in Rome, aged 54.

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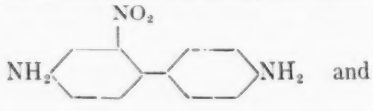
Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

294,922. New Azo Dyestuffs and their Application. British Dyestuffs Corporation, Ltd., Hexagon House, Blackley, Manchester, J. Baddiley, P. Chorley, and R. Brightman, Crumpsall Vale Chemical Works, Blackley Manchester. Application date, April 28, 1927.

The tetrazo compound of meta-mononitrobenzidine or *m*-*m*^{1}-dinitrobenzidine having the formulæ



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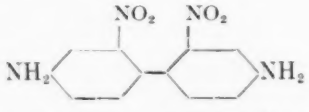


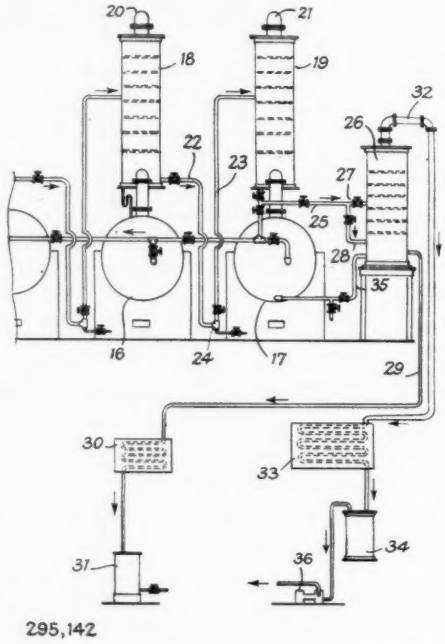
is coupled with two molecules of a 2 : 8-aminonaphthol sulphonic acid or an N-substituted derivative, or with one molecule of the acid or derivative and one molecule of any of the usual coupling components. The aminonaphthol sulphonic acid can be combined in acid or alkaline solution and may be combined before or after combination of the other coupling component. In an example, the suspension of tetrazo compound obtained by treating meta-mononitrobenzidine with sodium nitrite and hydrochloric acid is mixed with a solution of salicyclic acid in sodium hydroxide and sodium carbonate. When coupling is complete the mixture is acidified, and a neutral solution of 2-amino-8-naphthol-6-sulphonic acid is added. The mixture is then made alkaline, heated, and salt added to obtain the dyestuff. It dyes viscose silk and wool in red shades. Other examples are given of the coupling of tetrazotised meta-mononitrobenzidine with 1-(2^1 : 5^1-dichloro-4^1-sulphophenyl)-3-methyl-5-pyrazolone and 2-amino-8-naphthol-6-sulphonic acid ; tetrazotised meta-mononitrobenzidine with sodium naphthionate and 2-phenylamino-8-naphthol-6-sulphonic acid ; tetrazotised meta-aminonitrobenzidine with 2-amino-8-naphthol-6-sulphonic acid and resorcinol, or metaphenylene-diamine, or 1-naphthol-4-sulphonic acid, or a further proportion of 2-amino-8-naphthol-6-sulphonic acid ; tetrazotised 2 : 2^1-dinitrobenzidine with salicyclic acid and 2-amino-8-naphthol-6-sulphonic acid. All these dyestuffs are suitable for dyeing viscose silk.

294,947. Ester Mixtures, Process for the Production of. W. Claasen, Hansaring, 4, Cologne, Germany. Application date, February 2, 1927. Addition to 250,910.

Specification No. 250,910 (see The Chemical Age, Vol. XV, p. 34) describes the production of ester mixtures using crude cresols as primary materials. It is now found that this process can also be applied to crude phenol. The mixture of acids obtained by one of the usual oxidation processes from hydrogenated phenol is esterified with aliphatic, aromatic, or cyclic alcohols. Thus the cyclohexanol obtained by the catalytic hydrogenation from phenol is added to boiling nitric acid. The mixture of acids is evaporated, and dissolved in ethyl alcohol containing 3 per cent. hydrochloric acid. The mixture is boiled in a reflux condenser, separated, and washed with dilute soda solution to separate the acid ester formed at the same time. The resulting esters consist of a colourless liquid.

295,142. Distilling Hydrocarbons, Apparatus and Process for. C. Arnold, London. From Standard Development Co., 26, Broadway, New York. Application date, September 8, 1927.

In a distillation system, the oil is transferred from one still to the tower of the next succeeding still by means of a steam injector arranged at the lowest point of the pipe connection between the two. Stills 16, 17 represent the end stills of a battery, and are provided with fractionating towers 18, 19. The down-flow pipe 22 conveys oil from the bottom of the tower 18 to an upflow pipe 23 discharging into an intermediate portion of the next tower 19, and an injector 24 is arranged



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at the lowest point of the piping. The last tower is connected by pipes 25, 27, 28 to a final fractionating tower 26, and a pipe 29 is connected from the bottom of the tower 26 to a cooler 30 and tank 31. Vapour passes from the top of the tower 26 through pipe 32 to a condenser 33 and receiver 34. Reduced pressure is maintained in the final tower 26. The use of the steam injector provides the effect of steam distillation simultaneously with the forwarding of the oil.

Note.—Abstracts of the following specifications which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention :—265,601 (I.G. Farbenindustrie Akt.-Ges.), relating to condensation products from naphthalene or naphthalene derivatives and ethylene, see Vol. XVI, p. 381 ; 254,753 (Chemische Fabrik auf Actien, vorm E. Schering), relating to alkylated phenols and their hydrogenated products, see Vol. XV, p. 279 ; 266,752 (I.G. Farbenindustrie Akt.-Ges), relating to condensation products of urea and formaldehyde, see Vol. XVI, p. 487 ; 268,807 (I.G. Farbenindustrie Akt.-Ges), relating to azo dyestuffs, see Vol. XVI, p. 579 ; 270,314 (I.G. Farbenindstrie Akt.-Ges.), relating to conversion of high boiling hydrocarbons into low-boiling hydrocarbons, see Vol. XVII, p. 63 ; 270,349 (C. W. M. Bervoets), relating to mineral oils from peat, lignite, coal, and other bituminous materials, see Vol. XVII, p. 39 ; 276,341 (British Thomson-Houston Co.), relating to purifying of copper and copper alloys, see Vol. XVII, p. 47 (Metallurgical Section) ; 280,540 (E. G. T. Gustafsson), relating to production of metals from their sulphides in electric furnaces, see Vol. XVIII, p. 23 (Metallurgical Section) ; 282,706 (Soc. Generale Metallurgique de Hoboken), relating to treatment of zinc sulphate, see Vol. XVIII, p. 204 ; 283,558 (F. G. Liljenroth), relating to treatment of material containing magnesium, see Vol. XVIII, p. 248.

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International Specifications not yet Accepted

293,040. SODIUM-NITROGEN COMPOUNDS. Deutsche Gold- und Silber Scheideanstalt vorm. Roessler, 7, Weissfrauenstrasse, Frankfort-on-Main, Germany. International Convention date, July 1, 1927.

Sodium or potassium hydride is treated with aniline, mono-methyl-aniline, diphenylamine, acetamide, urea, guanidine, phthalimide, succinimide, diacetamide, phenol-thiourea to obtain sodium-nitrogen compounds.

293,352. DYES. I. G. Farbenindustrie Akt.-Ges, Frankfort-on-Main, Germany. International Convention date, July 4, 1927.

These dyes are obtained by the reaction of monoazo dyes containing an aceto-acetyl chloride residue with an aryl-amine sulphonic acid or a derivative, in a solvent such as pyridine or quinoline capable of neutralising the hydrochloric acid produced. In an example, the dyestuff 4-chloro-2-nitraniline→ acetoacetic acid is converted into the acid chloride, dissolved in chlorobenzene, and treated with 2-anisidine-4-sulphonic acid in pyridine. The chlorobenzene and pyridine are removed, by treating with steam, yielding a reddish-yellow pigment lake. Another example is given of the treatment of the dyestuff 4-methyl-2-nitraniline→ acetoacetic acid with 4-chloraniline-3-sulphonic acid.

293,361. DRYING GASES. Gasverarbeitungs Ges, Sodingen, Herne, Westphalia, Germany. International Convention date, July 4, 1927.

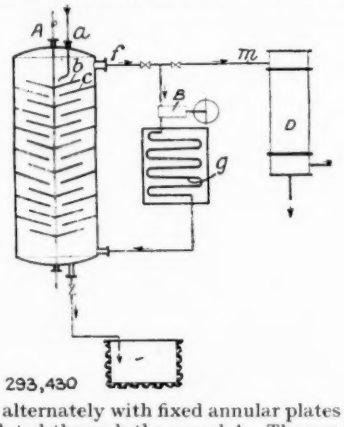
A nitrogen-hydrogen mixture for the synthesis of ammonia is dried by chemical reagents and freezing, and then again dried in the presence of ammonia at −25° C. to −70° C., the residual moisture being absorbed by the ammonia.

293,392. PURIFYING ALUMINATES. J. Seailles, 280, Boulevard Raspail, Paris. International Convention date, July 5, 1927.

Specifications 277,697 and 283,509 (see THE CHEMICAL AGE, Vol. XVII, p. 467, and Vol. XVIII, p. 248) describe the production of alumina from non-halogenated aluminium ore, *e.g.*, bauxite. In this invention, the proportion of silica in the alkaline earth aluminate obtained in the autoclave is reduced by regulating the temperature, pressure, and time of heating. If lime is used in the treatment of bauxite, catalysts such as benzene sulphonic acid or sulpho-ricinoleic acid may also be present. The sodium aluminate bath containing some dissolved silica can be further purified by preventing excess of free alkali when the alkaline earth aluminate is treated with sodium carbonate. Several methods of purification are described.

293,430. DISTILLING AND CRACKING OILS, TARS, ETC. Kohlenveredlung Akt.-Ges., 9, Roonstrasse, Berlin (Assignees of R. Feige, 8, General Barbystrasse, Reinickendorf, Berlin). International Convention date, July 6, 1927.

Oil or tar is distilled or cracked by passing through a pipe *a* on to conical discs *b* mounted on a rotating shaft in a vessel A,



293,430

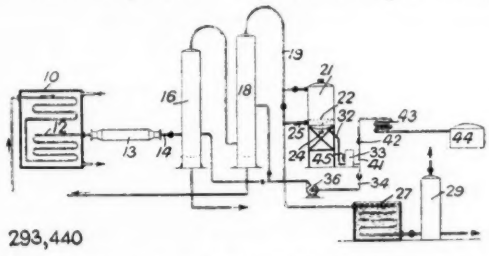
and arranged alternately with fixed annular plates *c*. Hot gases are also circulated through the vessel A. The products pass in part through a pipe *f*, *m* to a condenser D, part passing through pump B and heater *g* back to the vessel A. The heating gas may contain hydrogen, *e.g.*, water gas may be used.

293,302. CHEMICAL PROCESSES. M. Polanyi, 15, Waltraudstrasse, Zehlendorf, Berlin, and S. von Bogdandy, 14, Konigin-Luisenstrasse, Dahlem, Berlin. International Convention date, July 2, 1927.

The reacting substances are vaporised and rendered chemically active by superheating, electric discharges, or by starting chemical reactions in their path. The vapours are directed on to a cool surface such as a drum rotating at high speed, or the surface may be one of the reacting substances in liquid form. An example of the chemical activation is the production of free atoms of hydrogen by the effect of sodium or hydrochloric acid.

293,440. PURIFYING HYDROCARBON DISTILLATES. Gray Processes Corporation, 961, Frelinghuysen Avenue, Newark N.J., U.S.A. (Assigness of H. Pease, Barnsdall, Okla., U.S.A.). International Convention date, July 7, 1927.

Hydrocarbon distillate is vaporised and passed through solid adsorbents such as fuller's earth, which is then revivified by reduction of pressure. Hydrocarbons pass through a



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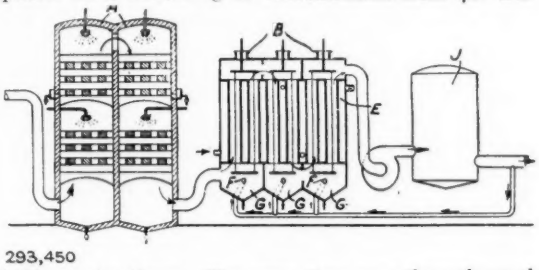
cracking furnace 12 to a reaction chamber 13, and then to a vaporiser 16 and dephlegmator 18. Vapour passes through pipe 19 to a chamber 21 having fuller's earth supported on a shelf 22, and then through pipe 25 to a condenser 27 and separator 29. Condensate passes from the absorbent through pipe 32 to tank 33 and then through pump 36 to towers 16, 18. When the absorbent becomes inactive, valve 42 is opened, and the flow through is thereby increased, or a partial vacuum may be applied to tank 44. The absorbent may be finally burned.

293,450. SULPHUR TRIOXIDE. Metallbank und Metallurgische Ges. Akt.-Ges., 45, Bockenheimer Anlage, Frankfort-on-Main, Germany. International Convention date, July 7, 1927.

Gases for the production of sulphuric acid by the contact process are treated in an apparatus A with successive sprays of sulphuric acid, increasing in concentration from 40° Bé. to



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50° Bé., to dry them. The gases then pass through an electrical precipitator B having a cooling jacket E. Sulphur trioxide gas from the contact chamber J is introduced through pipes F, and sulphuric acid collects in hoppers G. The acid in the final hopper is free from arsenic.

LATEST NOTIFICATIONS.

296,071. Catalytic oxidation of organic compounds. Selden Co. August 26, 1927.

296,048. Contact sulphuric acid process. Selden Co. August 24, 1927.

296,074. Process for the manufacture of potassium manganate. Soc. Chimique des Usines du Rhône. August 26, 1927.

296,049. Process for the production of oxygen-containing organic compounds. Soc. Chimique de la Grande-Paroisse Azote et Produits Chimiques. August 24, 1927.

296,079. Method of obtaining fatty acids wholly or almost wholly free from unsaponifiable matter. Oel-Und Fett-Chemie Ges. August 26, 1927.

296,301. Process for the separation of liquid mixtures. I.G. Farbenindustrie Akt.-Ges. August 27, 1927.

296,021. Process for the manufacture of chlorine derivatives of organic compounds. Polanyi, Dr. M., and Bogdandy, Dr. S. Von. August 23, 1927.

296,083. Spinning of artificial threads. I.G. Farbenindustrie Akt.-Ges. August 25, 1927.

295,990. Manufacture of condensation products of naphthalene and naphthalene derivatives. I.G. Farbenindustrie Akt.-Ges. August 22, 1927.

296,006. Manufacture of amino-alkylarylcarbinols or N-alkyl-amino-alklarylcarbinols. Soc. of Chemical Industry in Basle. August 22, 1927.

296,093. Photochemical production of vitamin D. from ergosterol. I.G. Farbenindustrie Akt.-Ges. August 26, 1927.

296,063. Device for regulating the quantity and composition of a gas mixture. I.G. Farbenindustrie Akt.-Ges. August 24, 1927.

296,309. Manufacture of N-oxyethyl-derivatives of 2-amino-1-oxybenzene. I.G. Farbenindustrie Akt.-Ges. August 26, 1927.

296,310. Manufacture of new dyestuffs. Soc. of Chemical Industry in Basle. August 27, 1927.

Specifications Accepted with Date of Application

266,346. Aliphatic auromercapto carboxylic acids, Manufacture of. Schering Kahlbaum Akt.-Ges. February 17, 1926. Addition to 265,777.

271,483. Hydrogen, Method of producing by decomposing saturated or unsaturated hydrocarbons or gaseous mixtures containing the same. R. Battig. May 20, 1926.

272,194. Low boiling point oils, Production of—by thermal treatment of coals, oils, and the like. I.G. Farbenindustrie Akt.-Ges. June 1, 1926.

273,675. Distillation of coal tar. C. Wessell. June 29, 1926.

274,501. Condensation products of arylamines, Manufacture of. P. Haller and H. Kappeler. July 16, 1926. Addition to 266,358.

276,967. Base exchanging substances, Production of. A. Rosenheim. September 1, 1926. Addition to 266,313.

279,106. Lead tetra-ethyl, Method of producing. H. W. Daudt. October 15, 1926.

280,885. Recovering acetylene in a concentrated form from gaseous mixtures thereof with inert or reducing gases free from oxygen or oxygen-containing compounds. I.G. Farbenindustrie Akt.-Ges. November 16, 1926.

284,314. Steel alloys possessing high strength at high temperatures. F. Krupp Akt.-Ges. January 28, 1927.

287,110. 1-methyl-2 : 5-dichloro-4-amino-benzene, Manufacture of. I.G. Farbenindustrie Akt.-Ges. March 15, 1927.

288,206. Vulcanisation of latex. I.G. Farbenindustrie Akt.-Ges. April 4, 1927.

291,438. Vulcanising natural or artificial rubber. Metallbank und Metallurgische Ges. Akt.-Ges. June 2, 1927.

292,068. Mixed or complete fertilisers, Manufacture of. I.G. Farbenindustrie Akt.-Ges. June 11, 1927.

295,734. Complex metallic compounds, Manufacture of. K. Carpmael and K. S. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) March 17, 1927.

295,744. Organo arsenic compounds, Manufacture of. G. Newbery and May and Baker, Ltd. March 23, 1927.

295,645. Vat dyestuff of the anthraquinione series, Manufacture of. K. Carpmael and K. S. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) May 14, 1927.

295,769. Copper alloys. C. Billington. May 25, 1927.

295,770. Vat dyestuffs, Manufacture of. British Dyestuffs Corporation, Ltd., A. Davidson, and A. Shepherdson. May 26, 1927.

295,805. Metallurgy of ores or materials containing tin and the extraction of metals or metal products therefrom. E. A. Ashcroft. July 7, 1927.

295,874. Adsorption processes and apparatus. S. Pilat. November 22, 1927.

295,824. Aromatic amines from nitro compounds, Manufacture and production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) August 4, 1927.

295,825. Mixed fertilisers, Manufacture and production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) August 5, 1927.

295,848. Phosphoric acid and phosphates, Manufacture of. I. E. Weber, H. E. Alcock, and B. Laporte, Ltd. September 22, 1927.

295,857. Wrought iron, Manufacture of. H. Wade. (*International Nickel Co.*) October 11, 1927.

Applications for Patents

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of insecticides, etc. 24,863. August 29.

Crundall, S. F. W., Spence, H., and Spence, P., and Sons, Ltd. Preparation of titanium compounds. 24,673. August 28.

Fabrique Nationale de Produits Chimiques et d'Explosifs Soc. Anon. Treating carbonaceous materials. 24,842. August 29. (Belgium, September 2, 1927.)

I.G. Farbenindustrie Akt.-Ges. Production of liquid hydrocarbons, etc. 23,921, 23,922, 23,925. August 20. (Germany, August 7, 1926.)

I.G. Farbenindustrie Akt.-Ges. Process for improving hydraulic properties of portland cement. 24,052. August 21. (Germany, October 17, 1927.)

I.G. Farbenindustrie Akt.-Ges. Colouring spirit varnishes. 23,908. August 20. (Germany, August 19, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of material from cellulose ethers and esters. 23,909. August 20. (Germany, August 19, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of compounds of anthracene series. 23,911. August 20. (Germany, August 18, 1927.)

I.G. Farbenindustrie Akt.-Ges. Photochemical production of vitamin D from ergosterol. 24,173. August 22. (Germany, August 26, 1927.)

I.G. Farbenindustrie Akt.-Ges, and Johnson, J. Y. Polymerisation of diolefines. 24,603. August 27.

I.G. Farbenindustrie Akt.-Ges, and Johnson, J. Y. Production of lacquers, etc. 24,604. August 27.

I.G. Farbenindustrie Akt.-Ges, and Johnson, J. Y. Production of agents for combating, etc., pests. 24,605. August 27.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Treatment of gases, vapours, etc. 24,606. August 27.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of valuable artificial threads, etc. 24,607. August 27.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of fertilisers. 24,608, 24,609. August 27.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of azine derivatives. 24,610. August 27.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of motor fuels. 24,838. August 29.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Carrying out gas reactions. 24,839. August 29.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Treatment of gases with electric currents. 24,871. August 29.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of yeast. 24,938. August 30.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of unsaturated fatty acids. 24,940. August 30.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of hydrocarbons. 25,054. August 31.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Fertilisers. 25,055. August 31.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Separation of gaseous mixtures. 25,056. August 31.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of iron alloys. 25,057. August 31.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of sulphonic acids. 25,168. September 1.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of cable papers, etc. 25,169. September 1.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of organic acid. 25,170. September 1.

I.G. Farbenindustrie Akt.-Ges. Manufacture of N-oxyethyl derivatives. 24,599. August 27. (Germany, August 26, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of vat dyestuffs. 24,860. August 29. (Germany, August 30, 1927.)

I.G. Farbenindustrie Akt.-Ges. Production of rubber tyres. 24,939. August 30. (Germany, October 20, 1927.)

I.G. Farbenindustrie Akt.-Ges. Reeling artificial threads. 24,973. August 30. (Germany, September 15, 1927.)

Imperial Chemical Industries, Ltd. Obtaining granular solids. 24,549. August 27.

Laing, B., and Nielsen, A. C. Distillation of solid carbonaceous materials, etc. 24,717. August 28.

Naugatuck Chemical Co. Method of treating latex, etc. 25,179. September 1. (United States, October 14, 1927.)

Rees, R. van. Process for recovering camphor from camphor-containing substances. 24,864. August 29.

Rheinische Kampfer-Fabrik Ges. Process for adding propylene to cresols to form propylated, etc., cresols. 24,989. August 30. (Germany, October 12, 1927.)

Richardson, R. Apparatus for drying sulphate of ammonia, etc. 24,948. August 30.

Schering-Kahlbaum Akt.-Ges. Manufacture of isothiourea ethers. 24,740. August 28. (Germany, September 9, 1927.)

Schering-Kahlbaum Akt.-Ges. Manufacture of *m*- and *p*-cresols. 24,861. August 29. (Germany, September 14, 1927.)

Sloman, H. A., and Vivian, A. C. Manufacture of beryllium oxide. 24,598. August 27.

Soc. of Chemical Industry in Basle. Manufacture of dyestuffs. 24,600. August 27. (Switzerland, August 27, 1927.)

Soc. of Chemical Industry in Basle Process for treatment of mixtures containing hydrocarbon, etc. 24,859. August 29. (Switzerland, August 29, 1927.)

Traube, W. Production of products from carbohydrates, etc. 24,937. August 30.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° TW.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 3d. to 1s. 8d. per gall., pyridinised industrial, 1s. 5d. to 1s. 10d. per gall.; mineralised 2s. 4d. to 2s. 8d. per gall.; 64 O.P., 1d. extra in all cases.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex wharf, London, in cwt. kegs,

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6½d. to 6¾d. per lb. Crude 60's, 2s. 2d. to 2s. 2½d. per gall. prompt.

ACID CRESYLIC 99/100.—2s. 7d. to 3s. per gall. 97/99.—2s. 6d. to 2s. 7d. per gall. Pale, 95%, 2s. 4d. to 2s. 5d. per gall. Dark, 2s. 1d. to 2s. 2d.

ANTHRACENE.—A quality, 2½d. per unit. 40%, £5 per ton.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.

BENZOLE.—Prices at works: Crude, 10½d. to 11d. per gall.; Standard Motor, 1s. 4½d. to 1s. 5d. per gall.; 90%, 1s. 7d. to 1s. 8d. per gall.; Pure, 1s. 10d. to 1s. 11d. per gall.

TOLUOLE.—90%, 1s. 6d. to 1s. 11d. per gall. Firm. Pure, 1s. 10d. to 2s. 1d. per gall.

XYLOL.—1s. 3d. to 1s. 11d. per gall. Pure, 1s. 6d. to 1s. 7d. per gall.

CREOSOTE.—Cresylic, 20/24%, 9d. per gall.; middle oil, 6⅞d. to 7⅞d. per gall. Heavy, 7d. to 8¼d. per gall. Standard specification, 6½d. to 6¾d. ex works. Salty, 7¼d. per gall.

NAPHTHA.—Crude, 8¼d. to 9d. per gall. Solvent 90/160, 1s. 1½d. to 1s. 2½d. per gall. Solvent 95/160, 1s. 2d. to 1s. 7d. per gall. Solvent 90/190, 11d. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed, £8 per ton. Hot pressed, £8 10s. to £9 per ton.

NAPHTHALENE.—Crystals, £13 to £14 10s. per ton. Quiet. Flaked, £14 to £15 per ton, according to districts.

PITCH.—Medium soft, 47s. 6d. to 50s. per ton, f.o.b., according to district. Nominal.

PYRIDINE.—90/140, 5s. to 6s. per gall. 90/180, 3s. to 4s. per gall. Heavy, 2s. 6d. to 3s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100 %.

ACID BENZOIC.—1s. 8½d. per lb.

ACID GAMMA.—4s. 6d. per lb.

ACID H.—3s. per lb.

ACID NAPHTHIONIC.—1s. 6d. per lb.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb.

ACID SULPHANILIC.—8½d. per lb.

ANILINE OIL.—8d. per lb. naked at works.

ANILINE SALTS.—8d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—5½d. per lb.

m-CRESOL 98/100%.—2s. 3d. to 2s. 6d. per lb.

p-CRESOL 32/34° C.—2s. 3d. to 2s. 6d. per lb.

DICHLORANILINE.—2s. per lb.

DIMETHYLANILINE.—1s. 11d. per lb.

DINITROBENZENE.—8½d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—10d. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb.

B-NAPHTHYLAMINE.—3s. per lb.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 8d. per lb.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb.

R. SALT.—2s. 2d. per lb.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—8d. per lb.

p-TOLUIDINE.—1s. 10d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.

N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.

CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.

IRON LIQUOR.—1s. 3d. per gall, 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.

WOOD TAR.—£4 to £5 per ton.

BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£2 16s. 10d. to £3 10s. per ton, according to quality.

CADMIUM SULPHIDE.—3s. 9d. to 4s. 6d. per lb.

CARBON BISULPHIDE.—£25 to £27 10s. per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £55 per ton, according to quantity. drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5d. to 6½d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPHONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£55 to £60 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. 7d. to 7s. per lb.

ZINC SULPHUR.—11d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 8d. per lb.

ACID, BENZOIC, B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 4d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—2s. 1d. per lb. Less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.
ACID, SALICYLIC, B.P. PULV.—1s. 6d. per lb. Technical.—10½d. to 11½d. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 4½d. per lb., less 5%.
ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities.
AMIDOL.—7s. 6d. to 9s. per lb., d/d.
AMIDOPYRIN.—7s. 9d. to 8s. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity. 18s. per lb. ex Gum.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated, 1s. per lb.
ATROPINE SULPHATE.—9s. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BENZONAPHTHOL.—3s. to 3s. 3d. per lb. spot.
BISMUTH CARBONATE.—9s. 9d. per lb.
BISMUTH CITRATE.—9s. 3d. per lb.
BISMUTH SALICYLATE.—8s. 9d. per lb.
BISMUTH SUBNITRATE.—8s. 3d. per lb.
BISMUTH NITRATE.—Cryst. 5s. 9d. per lb.
BISMUTH OXIDE.—12s. 3d. per lb.
BISMUTH SUBCHLORIDE.—10s. 9d. per lb.
BISMUTH SUBGALLATE.—7s. 9d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W. Qts., 11d. per lb.
BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Ammonium, 2s. 1d. per lb.; potassium, 1s. 10d. per lb.; sodium, 2s. per lb.; granulated, ½d. per lb. less; all spot. Large quantities at lower rates.
CALCIUM LACTATE.—B.P., 1s. 2d. to 1s. 4d. per lb.
CAMPHOR.—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.
CHLOROFORM.—2s. 4½d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHERS.—S.G. ·730—11d. to 1s. 0d. per lb., according to quantity; other gravities at proportionate prices.
FORMALDEHYDE, 40%.—37s. per cwt., in barrels ex wharf.
GUAIACOL CARBONATE.—4s. 6d. to 4s. 9d. per lb.
HEXAMINE.—1s. 11d. to 2s. 2d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.
HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28 lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE.—B.P., 2s. 8d. to 2s. 11d. per lb. Green, 3s. 1d. to 3s. 4d. per lb.; U.S.P., 2s. 9d. to 3s. per lb.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
IRON QUININE CITRATE.—B.P., 8½d. to 9½d. per oz.
MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. per lb., in 1 cwt. lots.
MENTHOL.—A.B.R. recrystallised B.P., 21s. per lb. net for January delivery; Synthetic, 10s. per lb.; Synthetic detached crystals, 10s. to 12s. 6d. per lb., according to quantity; Liquid (95%), 9s. 6d. per lb.
MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, crystals, 7s. 10d. to 7s. 11d. per lb., levig., 7s. 4d. to 7s. 5d. per lb.; Corrosive Sublimate, Lump, 6s. 1d. to 6s. 2d. per lb., Powder, 5s. 6d. to 5s. 7d. per lb.; White Precipitate, Lump, 6s. 3d. to 6s. 4d. per lb., Powder, 6s. 4d. to 6s. 5d. per lb., Extra Fine, 6s. 5d. to 6s. 6d. per lb.; Calomel, 6s. 8d. to 6s. 9d. per lb.; Yellow Oxide, 7s. 2d. to 7s. 3d. per lb.; Persulph., B.P.C., 6s. 5d. to 6s. 6d. per lb.; Sulph. nig., 6s. 2d. to 6s. 3d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 3d. to 1s. 6d. per lb.
METHYL SULPHONAL.—8s. 9d. to 9s. per lb.
METOL.—9s. to 11s. 6d. per lb. British make.
PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 1d. to 1s. 4d. per lb.
PHENACETIN.—2s. 5d. to 2s. 8d. per lb.
PHENAZONE.—3s. 9d. to 4s. per lb.
PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—95s. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P.C., 2s. 6d. to 2s. 9d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
POTASSIUM IODIDE.—16s. 8d. per lb., according to quantity.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.
QUININE SULPHATE.—1s. 8d. per oz., bulk in 100 oz. tins.
RESORCIN.—2s. 10d. to 3s. per lb., spot.
SACCHARIN.—47s. per lb.; in quantity lower.
SALOL.—2s. 3d. to 2s. 6d. per lb.
SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.
SODIUM CITRATE, B.P.C., 1911—2s. 3d. to 2s. 6d. per lb., B.P.C. 1923—2s. 5d. to 2s. 8d. per lb. U.S.P., 2s. 6d. to 2s. 9d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—95s. to 102s. 6d. per cwt. Crystals, 4s. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 2s. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 1d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.
SULPHONAL.—6s. 6d. to 6s. 9d. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. per lb.
THYMOL.—Puriss., 9s. 6d. to 9s. 9d. per lb., according to quantity. Firmer. Natural, 13s. 6d. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—10s. per lb.
AMYL ACETATE.—2s. 6d. per lb.
AMYL BUTYRATE.—4s. 9d. per lb.
AMYL SALICYLATE.—2s. 9d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 3d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL—2s. per lb
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—15s. 6d. per lb.
COUMARIN.—9s. 6d. per lb.
CITRONELLOL.—13s. 6d. per lb.
CITRAL.—8s. 3d. per lb.
ETHYL CINNAMATE.—6s. per lb.
ETHYL PHTHALATE.—2s. 6d. per lb.
EUGENOL.—10s. 6d. per lb.
GERANIOL (PALMAROSA).—23s. per lb.
GERANIOL.—6s. 6d. to 11s. per lb.
HELIOTROPINE.—4s. 6d. per lb.
ISO EUGENOL.—14s. 6d. per lb.
LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.
LINALYL ACETATE.—Ex Shui Oil, 14s. 6d. per lb. Ex Bois de Rose, 18s. 6d. per lb.
METHYL ANTHRANILATE.—8s. 6d. per lb.
METHYL BENZOATE.—4s. per lb.
MUSK KETONE.—35s. per lb.
MUSK XYLOL.—7s. per lb.
NEROLIN.—3s. 6d. per lb.
PHENYL ETHYL ACETATE.—11s. per lb.
PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.
RHODINOL.—40s. per lb.
SAFROL.—1s. 6d. per lb.
TERPINEOL.—1s. 6d. per lb.
VANILLIN.—16s. 6d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. 6d. per lb.
ANISE OIL.—2s. 9d. per lb.
BERGAMOT OIL.—26s. per lb.
BOURBON GERANIUM OIL.—21s. per lb.
CAMPHOR OIL.—9d. per lb.
CANANGA OIL, JAVA.—12s. per lb.
CINNAMON OIL LEAF.—6s. 9d. per oz.
CASSIA OIL, 80/85%.—7s. per lb.
CITRONELLA OIL.—Java, 2s. 2d. per lb., c.i.f. U.K. port. Ceylon, pure, 2s. 2d. per lb.
CLOVE OIL (PURE 90/92%).—7s. 6d. per lb.
EUCALYPTUS OIL, AUSTRALIAN, B.P. 70/75%.—2s. 1d. per lb.
LAVENDER OIL.—Mont Blanc, 48/50%, Esters, 16s. 3d. per lb.
LEMON OIL.—16s. per lb.
LEMONGRASS OIL.—4s. per lb.
ORANGE OIL, SWEET.—30s. per lb.
OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 75s. per oz.
PALMA ROSA OIL.—13s. 9d. per lb.
PEPPERMINT OIL.—Wayne County, 14s. 6d. per lb.; Japanese, 8s. 6d. per lb.
PETITGRAIN.—7s. 9d. per lb. Sandalwood, Mysore, 26s. 6d. per lb., 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, September 6, 1928.

BUSINESS has continued active during the last week, especially for export. Prices remain generally firm.

General Chemicals

ACETONE.—The position is unchanged, practically no supplies being available. Prices range from £74 10s. to £77 10s., and are likely to advance still further.

ACETIC ACID.—Unchanged.

ACID FORMIC is in good demand at £47 per ton for 85%.

ACID LACTIC is firm at £43 per ton for 50% by weight, for best imported pale quality.

OXALIC ACID is in fair demand, price unchanged at £31 to £33 per ton.

TARTARIC ACID remains quiet at 1s. 3¾d. per lb. to 1s. 4d. per lb.

AMMONIUM CHLORIDE.—Unchanged.

SULPHATE OF ALUMINA continues firm, and in short supply at £6 15s. per ton for 17/18% iron free.

ARSENIC.—Unchanged.

BARIUM CHLORIDE.—The short supply continues, and prices are firm at £9 10s. to £10 per ton, ex store.

COPPER SULPHATE.—Unchanged.

CREAM OF TARTAR is in a little better demand at £100 per ton, less 2½% for 99/100% B.P.

FORMALDEHYDE is unchanged at £39 10s. to £40 per ton for 40% vol., and in good demand.

LEAD ACETATE has advanced. Price now £43 5s. per ton, and £41 15s. per ton for white and brown respectively.

LEAD NITRATE is firm at £36 per ton.

LIME ACETATE.—The position remains unchanged. It is extremely difficult to obtain early delivery.

METHYL ACETATE is unchanged at about £59 per ton for 45%.

CARBONATE OF POTASH is unchanged at £25 to £27 per ton.

POTASSIUM CHLORATE is firm at £28 to £28 10s. per ton, with a good demand.

PERMANGANATE OF POTASH is firm at 5¼d. to 5½d. per lb.

PRUSSIATE OF POTASH is unchanged at £63 10s. to £65 10s. per ton, and in good demand.

SODIUM ACETATE continues firm, and in short supply at £21 to £22 per ton.

SODIUM PHOSPHATE.—Unchanged.

SODIUM PRUSSIATE is very firm at 4½d. to 5d. per lb.

SODIUM SULPHIDE.—Unchanged.

TARTAR EMETIC is in good demand at 11d. per lb.

ZINC SULPHATE.—Firm at £11 10s. to £11 15s. per ton.

Coal Tar Products

The market remains very quiet, and little business has been transacted during the past week, although benzols and naphthas remain firm, with very little offering. The prices of creosote and cresylic acid remain at about the same, with a tendency to a further fall.

MOTOR BENZOL is firm at 1s. 5d. per gallon, on rails.

SOLVENT NAPHTHA is firm at 1s. 1½d. per gallon, f.o.r. makers' works.

HEAVY NAPHTHA is also firm at 1s. 1d. to 1s. 1½d. per gallon, on rails.

CREOSOTE OIL remains weak, the price in the North being about 6d. per gallon, f.o.r., and 6½d. per gallon in London.

CRESYLIC ACID is unchanged, the 98/100% quality being quoted at 2s. 2d. per gallon f.o.b., while the dark quality 95/97% is quoted at about 1s. 10d. per gallon, f.o.b. naked.

NAPHTHALENES remain steady, the 74/76 quality being quoted at £5 per ton, and the 76/78 quality at £6 to £6 10s. per ton.

PITCH is unchanged, and the price remains at 50s. to 55s. per ton, f.o.b. main U.K. port.

Latest Oil Prices

LONDON, September 5.—LINSEED OIL was firmer. Spot, £28 15s.; October-September, £27 15s.; January-April, £28 5s.; and May-August, £28 12s. 6d., sellers. RAPE OIL was nominal. Crude extracted, £40; refined, £42. COTTON OIL quiet. Egyptian crude, £32 5s.; refined common edible, £37 15s.; deodorised, £39 15s. TURPENTINE neglected. American spot, 40s. 6d.; October-December, 41s. 3d. per cwt.

HULL, September 5.—LINSEED OIL.—September, £28 5s.; October-December, £28 7s. 6d.; January-April, £28 10s. per ton, naked. COTTON OIL.—Bombay crude, £29 5s.; Egyptian crude, £30; edible refined, £33 10s.; technical, £33; deodorised, £35 10s. per ton, naked. PALM KERNEL OIL.—Crushed, 5½ per cent., £37 per ton, naked. GROUNDNUT OIL.—Crushed/extracted, £37 15s.; deodorised, £41 15s. per ton. SOYA OIL.—Extracted and crushed, £32 10s.; deodorised, £36 per ton. RAPE OIL.—Crude/extracted, £40 10s.; refined, £42 10s. per ton. TURPENTINE.—Spot, 42s. 9d. per cwt., net cash terms, ex mill. CASTOR OIL and COD OIL unaltered

Nitrogen Products

Sulphate of Ammonia.—The price for export is slightly harder at £9 5s. 6d./£9 7s. 9d. per ton for prompt shipment, with higher price for shipment in later months. The demand continues satisfactory especially from the Far East and the sugar-growing Colonies. The home market continues uninteresting.

Nitrate of Soda.—Since the announcement of the new price scale for the home market last week nothing further has been heard concerning the terms of sale and the exact nature of rebates to distributors. This information is awaited with interest.

South Wales By-Products

THERE has been a little more activity in South Wales by-products, but business in general leaves much to be desired. Pitch is more active, but prices remain unchanged, the product changing hands at about 56s. to 60s. per ton delivered. Crude tar has a moderate demand round the 55s. to 60s. per ton f.o.r. maker's works mark. Coke oven tar continues to sell at from 7¾d. to 8d. per gallon, delivered, and gasworks tar at from 7½d. to 7¾d. per gallon delivered. Crude has very little demand, but prices are steady round the 80s. per ton f.o.r. maker's works mark, while whizzed is unchanged at 90s. per ton f.o.r. maker's works. Patent fuel and coke exports remain slow, but the inquiry is larger and a bigger volume of business is expected. Prices are unchanged, patent fuel, ex-ship Cardiff, is from 20s. 6d. to 22s. per ton; ex-ship Swansea, from 1s. to 2s. less. Coke, best foundry, 32s. 6d. to 37s. per ton: furnace from 10s. to 21s. per ton, and other sorts from 25s. to 32s. 6d. per ton. Oil imports over the last ascertainable four weeks period, which included the holiday weeks, show a substantial decrease, the total import being just over twenty million gallons.

Exporting Natural Gas from Canada to the U.S.A.

AT the annual meeting of the Range Oil and Gas Co., held at Calgary, Alberta, it was indicated that if the present plans of the company are consummated, surplus natural gas from the Province of Alberta will be available in the neighbouring State of Montana by next winter. The company recently received a permit from the Federal Government to export natural gas to the United States from the Rogers-Imperial well located 25 miles east of Coutts and 4 miles north of the International boundary. It is proposed to construct a pipe line this year to the U.S. boundary and into Montana, either to connect with the present pipeline to the City of Great Falls, or as a separate line to be supplied with gas from the Rogers-Imperial dome. The well, which has been capped since 1925, is one of the greatest natural gas wells in Canada. It is reported to have a rock pressure of 1,300 lb. to the square inch, and a flow of probably 50,000,000 c. ft. of gas daily. The Range Oil and Gas Co. is also drilling a second well on the Rogers-Imperial structure, which comprises 13,000 acres. The derrick is up, the necessary machinery on the ground, and spudding in has been done. It is expected that before winter the second well will be completed. The grant of the Federal Government permit to export gas to the United States, it is understood, will mean the opening of big markets in the State of Montana. It is expected that the supply of gas to Great Falls will start on the initial basis of 10,000,000 feet daily.

German Gas Experiments

ACCORDING to the *Berliner Tageblatt*, the military authorities at Cuxhaven propose to purchase a large plot of land near Brunsbüttelkoog, in a sparsely inhabited area at the juncture of the Elbe and the Kiel Canal, for gas experiments. A massive building is to be erected for the storage of steel containers of gas, presumably not poisonous, which it is proposed to use after the manner of naval smoke screens for enveloping places of importance in case of hostile air attacks.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinion.

Glasgow, September 5, 1928.

INQUIRY in the heavy chemical market has been a little better since our last report, but actual business placed has been relatively poor in proportion. Prices remain practically unchanged.

Industrial Chemicals

ACETONE, B.G.S.—Quoted £70 to £73 per ton, ex store, but still very little available for spot or early delivery.

ACID ACETIC.—98/100%, glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton. Powder, £32 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Slightly higher, at 6½d. per lb., delivered or f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—Some parcels still available for prompt delivery at 1s. 11d. per lb., less 5% ex store. Same price named for shipment.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality 4s. per carboy; dearsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC.—80° quality, £24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—On offer from the Continent at 3¼d. per lb., ex wharf. Spot material quoted 3½d. per lb., ex store. In better demand.

ACID SULPHURIC.—£2 15s. per ton, ex works, for 144° quality; £5 15s. per ton for 168° quality; dearsenicated quality, 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Quoted 1s. 4d. per lb., less 5%, ex wharf, prompt shipment from the Continent. Spot material available at 1s. 4½d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE.—On offer at £5 10s. per ton, c.i.f. U.K. ports. Spot material quoted £5 15s. per ton, ex store.

ALUM, LUMP POTASH.—Quoted £8 7s. 6d. per ton, c.i.f. U.K. ports, prompt shipment from the Continent. Crystal meal quoted £8 10s. per ton, ex store.

AMMONIA, ANHYDROUS.—Quoted 9½d. per lb., carriage paid, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA, LIQUID.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station; fine white crystals offered from the Continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE, 98/100%.—Quoted £40 per ton, ex wharf, prompt shipment from China.

ARSENIC, WHITE POWDERED.—Rather easier and offered for prompt despatch from mines at about £18 10s. per ton, ex wharf. Spot material quoted £20 per ton, ex store.

BARIUM CARBONATE, 98/100%.—English material on offer at £7 5s. per ton, ex store. Continental quoted £7 per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE.—On offer from the Continent at £8 17s. 6d. per ton, c.i.f. U.K. ports. Spot material quoted £9 15s. per ton, ex store.

BLEACHING POWDER.—British manufacturers' contract price to consumers, £6 12s. 6d. per ton, delivered, minimum 4-ton lots. Continental on offer at £6 10s. per ton, ex wharf.

CALCIUM CHLORIDE.—British manufacturers' price, £4 5s. to £4 15s. per ton, according to quantity and point of delivery. Continental material on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports for export.

COPPER SULPHATE.—On offer from the Continent at about £23 15s. per ton, c.i.f. U.K. ports, but spot parcels of British material offered at about £23 per ton, ex store.

FORMALDEHYDE, 40%.—Quoted £35 10s. per ton, c.i.f. U.K. ports. Spot material on offer at £38 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Spot material available at about £30 10s. per ton, ex store. Offered at £29 per ton, c.i.f. U.K. port to come forward.

LEAD, WHITE.—£35 15s. per ton, c.i.f. U.K. ports.

LEAD ACETATE.—White crystals quoted £41 15s. per ton, ex store. Brown on offer at about £40 per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

METHYLATED SPIRIT.—Industrial quality, 64 O.P., quoted 1s. 4d. per gallon, less 2% delivered.

POTASSIUM BICHROMATE.—4⅛d. per lb., delivered, minimum 4-ton lots. Under 4-ton lots ⅛d. per lb. extra.

POTASSIUM CARBONATE, 96/98%.—Offered from the Continent at £25 per ton, c.i.f. U.K. ports. Spot material available at £26 per ton, ex store.

POTASSIUM CHLORATE, 99¾/100%, POWDER.—Quoted £23 per ton, c.i.f. U.K. ports. Crystals 20s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s.6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 5¼d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Offered from the Continent at 6½d. per lb., ex wharf, prompt shipment. Spot material quoted 6⅝d. per lb., ex store.

SODA CAUSTIC.—Powdered, 98/99%, £17 17s. 6d. per ton; solid, 76/77%, £14 10s. per ton, and 70/72%, £13 12s. 6d. per ton, minimum 4-ton lots, carriage paid on contract. Spot material, 10s. per ton extra.

SODIUM ACETATE.—Spot material on offer at about £22 per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3d. per lb., delivered buyers' works, minimum 4-ton lots. Under 4 and over 2-ton lots 1/10d. per lb. extra. Under 2-ton lots 3⅛d. per lb.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, 27s. 6d. per ton extra. Light soda ash, £7 3s. 9d. per ton, ex quay, minimum 4-ton lots, with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots.

SODIUM NITRATE, 100%.—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIATE.—In moderate demand. Spot material quoted 4¾d. per lb., ex store.

SODIUM SULPHATE (SALTCAKE).—Prices 50s. per ton, ex works, 52s. 6d. per ton delivered for unground quality. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption:—solid, 60/62%, £9 per ton; broken, 60/62%, £10 per ton; crystals, 30/32%, £7 2s. 6d. per ton, delivered buyers' works on contract, minimum 4-ton lots. Special prices for some consumers. Spot material 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; ground American, £9 5s. per ton, ex store.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid on offer from the Continent at about £12 15s. per ton, ci.f. U.K. ports. Powdered 20s. per ton extra.

ZINC SULPHATE.—Offered from the Continent at about £10 5s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Manufacture of Sugar Regulations

THE Manufacture of Sugar Regulations, 1928, made by the Commissioners of Customs and Excise under Section 4 (2) of the British Sugar (Subsidy) Act, 1925, and Part III (4) of the Second Schedule to the Finance Act, 1928, have now been issued (*Statutory Rules and Orders*, 1928, No. 622: H.M. Stationery Office, 2d.). The Regulations, revoking those of August 15, 1925, cover the preparation of beet for sugar manufacture, the labelling of packages of sugar, preparation of returns for Customs and Excise officers, the keeping of daily register, the times of delivery and reception of sugar, and details of the provisions of the Spirits Act, 1880, applying to the manufacture and storage of spirits which apply to the manufacture and storage of sugar.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, September 6, 1928.

Although on the whole the general level of prices in the chemical market here has not altered substantially compared with a week ago, a tendency towards lower values is occasionally apparent. With regard to the run of business, specifications against contracts have been coming to hand this week fairly regularly from home consumers. Conditions in the open market, however, have been on the quiet side, and buying interest has been of a patchy character.

Heavy Chemicals

A moderate demand has been experienced in the case of hyposulphite of soda at somewhat irregular prices, with commercial quality selling at an average price of £9 10s. per ton and photographic at about £15 10s. Caustic soda is moving off in fairly regular quantities and values are firm at the old prices of £13 7s. 6d. to £15 7s. 6d. per ton, according to quality. With regard to sulphide of sodium, inquiry for this material during the past week has been on rather narrow lines, and values appear to be easy, with the commercial product offering at from £7 10s. to £8 per ton, and the 60–65 per cent. concentrated solid quality at round £9 10s. Phosphate of soda is not particularly active, but quotations have not shown any material alteration on the week, the current average being £12 5s. per ton. A moderate trade has been reported in the case of bleaching powder, with offers this week ranging from about £6 15s. to £7 per ton. Alkali keeps firm at £6 2s. 6d. per ton on the basis of contract lots, and a fair amount of business is being put through. Much the same may be said in respect of bicarbonate of soda, makers' quotations for which are at £10 10s. per ton. Saltcake is in rather quiet request, but values of this are maintained at from £2 12s. 6d. to £2 15s. per ton. Prussiate of soda keeps steady, and a moderate inquiry has been reported at from 4¾d. to 5¼d. per lb., according to quantity. Interest in the case of chlorate of soda is still rather subdued, but at about 2¾d. per lb., values are pretty much as at last report. Bichromate of soda is steady and in fair request at 3d. to 3¼d. per lb.

Permanganate of potash is fairly steady in spite of a somewhat sluggish demand for the product; B.P. grade is quoted at from 5¼d. to 5½d. per lb. and commercial at about 5d. Carbonate of potash shows little change on the week, a moderate business being put through at round £25 per ton. Caustic potash, also, is attracting a fair amount of attention, and prices are firm on the basis of £33 5s. per ton for prompt delivery of one- to five-ton lots. Yellow prussiate of potash meets with a quietly steady demand, with values held at from 6¾d. to 7¼d. per lb., according to quantity. Chlorate of potash is being quoted down to 2¾d. per lb., without arousing very much buying interest.

Inquiry for sulphate of copper is about up to its usual level at this time of the year, with current offers at round £25 per ton. Arsenic is in comparatively slow demand, but there has been little alteration in the price position, round £16 10s. to £17 per ton, on rails, being quoted for white powdered, Cornish makes. Nitrate of lead is on the slow side, and values are easy at £36 5s. per ton. With regard to the acetates of lead, a quiet demand is reported at about £39 10s. per ton for white and 20s. less for brown material. Acetate of lime is fairly firm, though only in moderate request at round £9 per ton for brown and £16 10s. for grey.

Acids and Tar Products

Relatively little change has occurred this week in the position of the acid products. Acetic acid is in quietly steady demand, and values are held, with glacial at from £66 to £68 per ton and commercial at £36. Both tartaric and citric acid continue rather firm at 1s. 4d. to 1s. 4½d. and 2s. per lb., respectively. There is a limited inquiry about for oxalic acid, but quotations for this are steady at round 3½d. per lb.

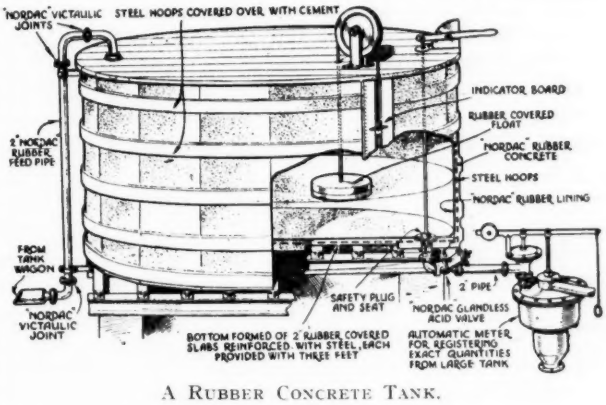
Most of the by-products are definitely weak in tendency, and the demand in most instances is quiet. Pitch is rather nominal at from £2 5s. to £2 7s. 6d. per ton, f.o.b., with creosote oil at 6¼d. to 6½d. per gallon, and carbolic acid at round 2s. per gallon for crude and 6¼d. per lb. for crystal. Solvent naphtha is about maintained at round 1s. 1d. per gallon.

"Nordac" Acid-Resisting Plant

The firm of Nordac, Ltd., of Wealdstone, Harrow, was formed about a year ago to develop the business and connection of Mr. Norman Swindin in the manufacture and design of special rubber plant for the treatment of chemicals. His former association with the Chemical and Metallurgical Corporation, Ltd., introduced Mr. Swindin to the study of corrosion in a specially active form.

One of the first problems tackled by Mr. Swindin in that connection was to make a cheap rubber-lined vessel, and this was solved by the use of specially compounded rubber which would cure at temperatures below that of the boiling liquor used (saturated solution of salt containing 10 per cent. of HCl).

In the efforts made to put the material on the market progress was slow, owing to the price and the need of educating the chemical industry in the use of rubber-lined plant. The tardy development may be also due to certain limitations of this type of compound and the nature of the corrosion which it was originally developed to resist. Uncured rubber is not very resistant to corrosion, but is rendered so by curing. But corrosion due to complete ionisation of almost neutral salts which is severe on metals has no action at all on these compounds whether cured or uncured. However, the chief and most important difficulty in marketing the compound lay in the demand for the lining to be placed in existing plant, most of which is already badly corroded and rotten. A study to find a cheap junction or cement which could be applied to wet and corroded surfaces in order to develope this type of rubber


"NORDAC" VICTAULIC JOINTS
STEEL HOOPS COVERED OVER WITH CEMENT
INDICATOR BOARD
RUBBER COVERED FLOAT
"NORDAC" RUBBER CONCRETE
STEEL HOOPS
"NORDAC" RUBBER LINING
2" NORDAC RUBBER FEED PIPE
FROM TANK WAGON
"NORDAC" VICTAULIC JOINT
SAFETY PLUG AND SEAT
2" PIPE
"NORDAC" GLANDLESS ACID VALVE
BOTTOM FORMED OF 2" RUBBER COVERED SLABS REINFORCED WITH STEEL, EACH PROVIDED WITH THREE FEET
AUTOMATIC METER FOR REGISTERING EXACT QUANTITIES FROM LARGE TANK

A Rubber Concrete Tank.

lining resulted in the development of the Nordac patent rubber cement junction, which has enabled much plant to be lined satisfactorily. With it old Lancashire boilers, second-hand Hollander beaters, worn out wood vats wet and sodden with acid, filters, electro-plating tanks, etc., have been lined with rubber. The firm has also applied the rubber cement junction to the repairing of large earthenware tanks, etc.

The next problem is to engineer rubber plant, that is, to fit it up without makeshift apparatus. Nordac, Ltd., are gradually developing a type of apparatus which enables corrosives such as hydrochloric acid to be perfectly handled. First comes the tank, vat or containing vessel. This is made of iron, wood, or ordinary concrete rubber-lined by means of the special junction. The vessel is usually lined on the site. Better still is the new all rubber concrete vessel made up from moulded sections and built in a steel framework and held together with steel bands like a wood vat. The figure shows the new Nordac Rubber Concrete Storage Tank fitted up completely. The sides of the vessel consist of slabs, about 12 in. wide and from 4 to 10 ft. deep, which are made exactly like paving slabs, but having inside suitable iron reinforcement. The bottom and top are made of similar slabs laid in position shown. Iron hoops secure these slabs, and are afterwards completely covered by the rubber concrete. For many corrosive solutions it is not necessary to line with milled sheet, and continual research promises to render rubber concrete entirely resistant to a greater range of corrosives than ordinary rubber. The whole tank is acid-resisting throughout, and does not need painting or any special treatment on the outside.

Company News

CELANESE CORPORATION OF AMERICA.—The quarterly dividend of $1\frac{3}{4}$ per cent. on the 7 per cent. cumulative series prior preferred stock is announced, payable on October 1.

GEO. ADLAM AND SONS.—The report for the year ended May 31 last states that the 25,000 ordinary shares of £1 each have been sub-divided into 500,000 shares of 1s. each. During the year the capital of the company was increased by £100,000, representing the 8 per cent. cumulative preference shares of £1. This represents the capitalisation of undivided profits to the extent of £100,000 appropriated as capital and applied in full payment of the said preference shares. The profit for the year, after charging all expenses, other than depreciation and taxation, etc., was £29,457. The capitalization of the reserve account is made up as follows: Reserve account—Balance, June 1, 1927, £6,315. Add £93,235, the amount transferred from profit and loss account balance of undivided profits per accounts for the year ended May 31, 1927, and £450, being further provision. The available profit at May 31, 1928, was £25,278, which sum includes £5,229 brought forward. The interim dividend paid during the year absorbed £20,000, and £5,278 is carried forward.

AMERICAN CYANAMID CO.—The consolidated profit and loss account of the American Cyanamid Co. and subsidiaries for the year ended June 30 last shows that the net profit on sales, after providing for depreciation, etc., was $2,429,402 (against $1,882,626). Miscellaneous income totalled $282,450 (against $290,773). Miscellaneous charges absorbed $934,646 (against $735,156), while provision for income tax required $229,616 (against $152,920). The net income was $1,547,589 (against $1,285,323). The surplus of the American Cyanamid Co. as at June 30, 1927, was $1,836,482, and the net surplus at July 1, 1927, of subsidiaries, not previously consolidated, $76,492. Together there is an available net surplus of $3,460,564. Dividends on the 6 per cent. preferred stock required $335,754 and on the common stock $527,544. Miscellaneous adjustments and amounts written off totalled $270,392, leaving a surplus at June 30 last of $2,326,874. The claim of the Government for additional taxes referred to in the reports for the preceding years still remains undetermined. The liability thereunder has been amply provided for in the company's balance sheet.

Lectures on Gas Manufacture and Carbonisation

THE advent of low-temperature carbonisation into the sphere of practical politics has laid emphasis on the importance of the scientific and chemical side of carbonisation processes, and this is reflected in the very comprehensive curriculum which is announced by the Sir John Cass Technical Institute of Jewry Street, Aldgate, London. The full curriculum extends over five years, and the needs of those engaged in the industry are fully catered for by the provision of courses on such important subjects as "Fuel and Refractories," "Applications of Engineering," and "Gas Analysis." The more strictly vocational part of the subject is to be dealt with in three courses on "Gas Manufacture," the first of these being delivered in the forthcoming session by Mr. H. D. Greenwood, M.Sc.(Gas Eng.), A.I.C. To meet the convenience of those engaged during the day all classes are held in the evening, and provision is made for those attending to enter for the certificate examinations of the Institution of Gas Engineers. Further, post-graduate students are encouraged to offer "Coal Carbonisation" as a subject for the M.Sc. degree. Among other courses announced by the Sir John Cass Technical Institute those on "English Law as Related to Chemical Industry" and "Chemical Plant" (by a panel of special lecturers) are particularly interesting to those associated with the gas industry.

Aslib Conference

THE Annual Conference of the Association of Special Libraries and Information Bureaux (Aslib) will be held at New College Oxford, from September 17–24. Dr. R. S. Hutton, of the Research Association of British Non-Ferrous Metals Manufacturers, will read a paper on the work of "Aslib," Dr. E. H. Tripp will make a contribution on "Certain Aspects of the Agricultural Research" and a paper on "Scientific Abstracts" will be delivered by Dr. W. Rosenhain, F.R.S.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks, and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to September 29, 1928.

"PROTOSORB."

493,049. Class 1. A chemical substance for the absorption of carbon dioxide. Robert Henry Davis, 187, Westminster Bridge Road, London, S.E.1; engineer. July 4, 1928.

"NOVOXIDE."

493,151. Class 1. A chemical substance for the absorption of carbon dioxide. Robert Henry Davis, etc. (See above Mark.) July 9, 1928.

"NOVASORB."

493,152. Class 1. A chemical substance for the absorption of carbon dioxide. Robert Henry Davis, etc. (See above Mark.)

"BLACK PRINCE."

491,070. Class 1. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives, but not including lamp black and not including any goods of a like kind to lamp black. R. S. Clare and Co., Ltd., 8 to 15, Stanhope Street, Liverpool; tar distillers. May 3, 1928.

"RUCEL."

491,955. Class 1. Substances for use in manufactures and anti-corrosives. Herbert Newall Morris, 140, Withington Road, Whalley Range, Manchester; chemist. May 31, 1928.

Homogeneous Catalysis

Faraday Society Discussion at Cambridge

THE Faraday Society will hold a general discussion on "Homogeneous Catalysis" in the Physical Chemistry Laboratory of the University of Cambridge on Friday and Saturday, September 28 and 29. Professor C. H. Desch will occupy the chair. Professor T. M. Lowry will open the discussion with an introductory paper on "Some Problems in Homogeneous Catalysis." The papers will be grouped in three divisions:—

Part I. General Relations.—Papers on "Homogeneous Catalysis," by C. N. Hinshelwood; "The Influence of Nitrogen Peroxide on the Union of Hydrogen and Oxygen. A Problem of Trace Catalysis," by C. H. Gibson and C. N. Hinshelwood; "Catalytic Phenomena in the Tautomerism of certain α-Diketones," by Henri Moureu; "Negative Catalysis," by E. K. Rideal; "Ionisation in Chemical Change," by N. R. Dhar; "Negative Catalysis in Slow and Induced Oxidations," by N. R. Dhar; "Phosphorescence and Autocatalysis during Slow Combustion," by F. Gill, E. W. J. Mardles, and H. C. Tett; and "Negative Catalysis," by H. Baeckstroem.

Part II. Intermediate Addition-Compounds and Chain Reactions. Papers on "Compound Formation in Ester-Water Systems," by James Kendall and Lilian E. Harrison; "Report on the Theory of Chain Reactions," by J. A. Christiansen; "Bromine Inhibition of Chain Reactions," by M. Polanyi; and "The Theory of Molecular Dislocation Applied to Homogeneous Catalysis," by J. Böeseken.

The above will be dealt with on Friday, September 28. On the next day, the third group of papers will be dealt with, this being Part III. Neutral Salt and Activity Effects. Papers on "The Theory of Acid and Basic Catalysis," by J. N. Brönsted; "Catalytic Effects of Acids and Bases and the Influence of Inert Salts," by H. M. Dawson; "Compounds between Catalysts and Substrates and their Reactivity," by H. von Euler; "On the Catalytic Activity of Hydrogen Ions in Ethyl Alcohol," by H. Goldschmidt; "Investigations of Salt Action in Homogeneous Catalysis," by H. S. Harned and G. Akerlöf; "Keto-Enol Isomerism and the Mechanism of Homogeneous Reactions," by F. O. Rice and J. J. Sullivan; and "The Activity Theory of Reaction Velocity. The Rate of Interaction of a Chloroamine and Hydrobromic Acid," by F. G. Soper.

IMPERIAL CHEMICAL INDUSTRIES LIMITED

and the

Motor Trade

The appearance of the first motor car is within the recollection of many people, yet visualised to-day the motor industry is a stupendous panorama in which many other industries play a part.

Towards the building of the modern motor car Imperial Chemical Industries Limited supply many products, such as chemicals used in the manufacture of steel, glass, rubber, etc., non-ferrous metals for fittings; 'Rexine' leathercloth for upholstery and car bodies; 'Belco' cellulose finish for car bodies; dyestuffs for producing the colours in the finish and upholstery; radiators and carburetters. 'Sunbeam' motor cycles, also, are a product of one of the companies of Imperial Chemical Industries Limited.

With the evolution of motor cars came better roads, and for these are used many products such as limestone, silicate of soda and other chemicals. Thus is completed the vital connection which Imperial Chemical Industries Limited maintain throughout the motor industry and the industries connected with it.

Enquiries should be addressed to:

IMPERIAL CHEMICAL INDUSTRIES LIMITED
NOBEL HOUSE, BUCKINGHAM GATE, LONDON, S.W.1
or to Sales Offices or
Agents throughout the World

'Belco' and 'Rexine' will be exhibited at the Motor Show, Olympia, October 11th to 20th.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*

WOOLFENDEN, Fred (trading as SOLVO CHEMICAL CO.), 10, Wellington Street, Milnrow. (C.C., 8/9/28.) £14 15s. 5d. August 4.

PLATEN, Mr. J., 321, Brixton Road, chemical factor. (C.C., 8/9/28.) £16 7s. March 26.

CALLAGHAN, Bernard Patrick, 24, North Gate, Harborne, Birmingham, analytical chemists. (C.C., 8/9/28.) £21 9s. 2d. July 26.

Bill of Sale

CAMPBELL, Wilfred, 149, Market Street, Stoneclough, dye works proprietor. (B.S., 8/9/28.) Dated August 31, filed September 1. £400.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case, the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

MALEHURST BARYTES CO., LTD., near Shrewsbury. (M., 8/9/28.) Registered August 21, £9,500 debentures, part of amount already registered; general charge; also registered August 21, £500 debenture to Bulstrode Trust, Ltd., Pinners Hall, Austin Friars, E.C.; general charge. *£32,000. October 19, 1927.

NITRO-CELLULOSE EXPLOSIVES CO., LTD., London, W.C. (M., 8/9/28.) Registered August 22, by order on terms, series of £12,500 debentures, present issue £500; general charge; also registered August 22, £700, £2,300, £3,100, £100, £200, £1,000, and £500 debentures, parts of above.

POMEROY (MRS.), LTD., London, S.W., manufacturers of toilet requisites, etc. (M., 8/9/28.) Registered August 21, supplemental trust deed dated August 14, 1928, securing £8,000; general charge, subject to prior charge conferred by principal trust deed dated November 25, 1927. *£2,500. December 8, 1927.

STAR CHEMICAL CO., LTD., London, E. (M., 8/9/28.) Registered August 24, £1,000 debenture to C. E. Thomas, 362, Mare Street, Hackney; general charge. *Nil. December 31, 1927.

London Gazette, &c.

Company Winding Up Voluntarily

MELLOR BLEACHING CO., LTD. (C.W.U.V., 8/9/28.) By reason of its liabilities, August 28. F. Nightingale, Chartered Accountant, appointed as liquidator. Meeting of creditors at 21, Dickinson Street, Manchester, Friday, September 14, at 12 noon. Creditors' claims by September 12.

New Companies Registered

ALLIED GUANO AND CHEMICAL CO., LTD.—Registered August 30. Nom. capital, £12,000 in £1 shares. Manufacturers of and dealers in all classes of chemicals, fertilisers, fertilising and spraying materials, disinfectants, insecticides, germicides, agricultural and horticultural implements and appliances, etc. A subscriber: H. C. Hogbin, J.P., Highlands, Osterley Park.

THAMES TAR DISTILLERIES, LTD.—Registered August 29. Nom. capital, £5,000 in £1 shares. Tar distillers, importers, exporters and contractors, pitch merchants, etc. A director: G. Evetts, M.I.C.E., Palace Chambers, Bridge Street, Westminster, London, S.W.1.

CAPPING MACHINES, LTD., Station Buildings, Wealdstone, Harrow, Middlesex.—Registered September 3. Nom. capital, £100 in £1 shares. To acquire from L. G. Davies the benefit of an existing invention relating to a machine for capping or sealing or otherwise affixing lids or caps or other coverings to jars, containers and the like, etc. Directors: L. G. Davies, W. W. Latham.

Empire Mining and Metallurgical Congress

Preliminary Notes of the 1930 Meeting

On behalf of the Union Government, the Prime Minister of South Africa, General Hertzog, has issued an invitation for the Third (Triennial) Empire Mining and Metallurgical Congress, to be held in South Africa in 1930. This has been accepted by the Empire Council of Mining and Metallurgical Institutions, on behalf of the constituent bodies. A strong and influential executive committee has been appointed by the South African constituent institutions, and a particularly attractive programme is in course of preparation. The Congress will commence in Cape Town on Monday, March 24, 1930.

A tentative itinerary has been arranged, which comprises visits to all the principal mining centres in the Union and Rhodesia, as well as places of scenic interest. Those attending the Congress will have the opportunity of visiting the diamond mines at Kimberley, the gold mines and works of the Witwatersrand, the gold, diamond, platinum, coal, asbestos and copper mining districts in the Transvaal, and the Sabie Game Reserve. The Rhodesian tour will include the Victoria Falls, gold, copper, zinc-lead, asbestos and coal mines, and the Zimbabwe Ruins. Opportunities will also be afforded of visiting some of the more important industrial developments throughout the country. Sessions will probably be held in Cape Town, Kimberley, Johannesburg, Buluwayo and Durban. The itinerary as planned provisionally, will occupy 47 days, the whole distance being a little over 7,000 miles; special trains will be provided by the South African Railway Administration, and catering and service will be on a luxury basis. It is hoped that the total inclusive cost of the tour will not exceed £140.

The Executive Committee propose to issue, from time to time, circulars dealing with the details of the programme, and pamphlets or brochures containing descriptions of the places on the route of the tour. It is hoped that all those members of the constituent institutions who are in a position to do so, will advise the Secretary as early as possible, of their intention to attend the Congress. Notifications should be addressed to the Secretary, Third (Triennial) Empire Mining and Metallurgical Congress, the Scientific and Technical Club, 100, Fox Street, Johannesburg, South Africa.

Lever Brothers Trade Mark Appeal

An appeal was made in Dublin on Tuesday by Lever Brothers, Ltd., before Mr. H. E. M. Bodley, Controller under the Industrial and Commercial Property Protection Act, 1927, against refusal of the Free State Patent Office to register their trade mark "Lifebuoy" in respect of certain articles in the absence of confirmatory evidence regarding its use in connection with the articles in question. Mr. M. J. Ryan, for the company, said his clients were aggrieved that their trade mark had not been inserted in the Free State register. The mark had been registered in the London Patent Office in 1894, and he argued that his clients had a right to have it registered in the Free State, under the Free State Act. The section under which the application was made, he said, was mandatory on the Controller by virtue of an international convention revised at Washington in 1911. The Controller later delivered judgment against the appellants on the ground that the validity of the firm's trade mark in respect of the goods in question had lapsed through non-user.